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Phillip W. Warren, B.A., Ph.C., Professor Emeritus, A.P.O.E.C., Cert.Edu-K.,CC-EFT
4459 52A St., Delta, B.C., V4K 2Y3 Canada
Phone and voice mail: (604) 946-4963. Toll free North America: 1-866-946-4963
EMail: phillip_warren@telus.net
Website: www.rebprotocol.net
U.S. mailing address: P.O. Box 1595, Point Roberts, WA 98281-1595

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A collection of articles on body, movement and somatics in psychotherapy and life in general.

We'll soon have you sorted out, Mr. Fenton.

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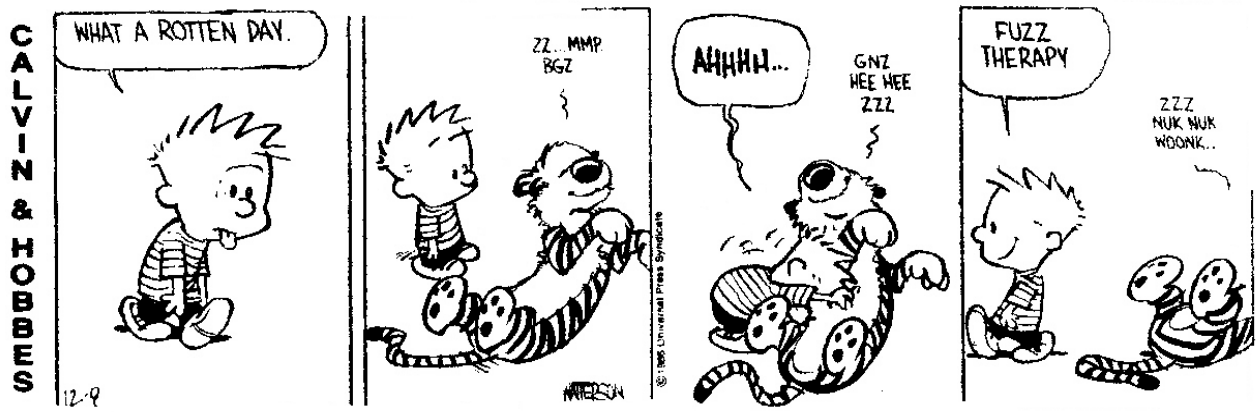


1. MEANING AND THE HISTORY OF THE BODY

Toward a Postmodern Medicine

by David Michael Levin

Noetic Sciences Review, Spring 1995, pp. 5-12

This article has been edited and rewritten by IONS staff with permission from the authors and publisher, based on "The Discursive Formation of the Body in the History of Medicine" by David Michael Levin and George F. Solomon in The Journal of Medicine and Philosophy. vol. 15, pp. 515-537, 1990.

***Editor's Note**: For nearly four hundred years, Western philosophy and science have perpetuated the Cartesian split—the separation of mind and body. This schema has deeply influenced the theory and practice of Western medicine, resulting in the development of two different approaches to treatment of illness: physiological medicine and psychological therapies. One medicine treats flesh and blood, the other attempts to deal with the quality of lived experience. Throughout the ages, different "bodies" of medical knowledge have been based on different images of the body itself. In this article, philosopher David Michael Levin traces the history of the body, and relates its changing images to shifts in medical "discourse"—to changing meanings of the idea of "body." He proposes that, as the meaning changes, the body of medicine progressively converges on an understanding of the body of lived experience—where effective medicine encourages expression of bodily-felt meanings; where soma and psyche are aspects of a single, meaningful whole.*

Levin's philosophical overview is augmented by the medical scientist George F. Solomon's account of psychoneuroimmunology (PNI) as scientific support for the postmodern paradigm emerging in medicine.

1.1. Introduction

The human body is an evolutionary biological entity, but it is more than that. It is also an ongoing achievement of socialization and acculturation. As these social processes interact and communicate with the body's biological nature, they shape and transform it. Human beings are sociable from the very beginning—that is to say, our bodies are biologically organized and ordered for social interaction and communication. Consequently, it is not possible to draw the boundary between the body of nature and the body of culture with any precision, certainty, and finality. The boundary has, in fact, been continually redrawn, especially in this century, as the science of medicine accumulates knowledge that incorporates the body into ever more subtle and more intricate models and analyses.

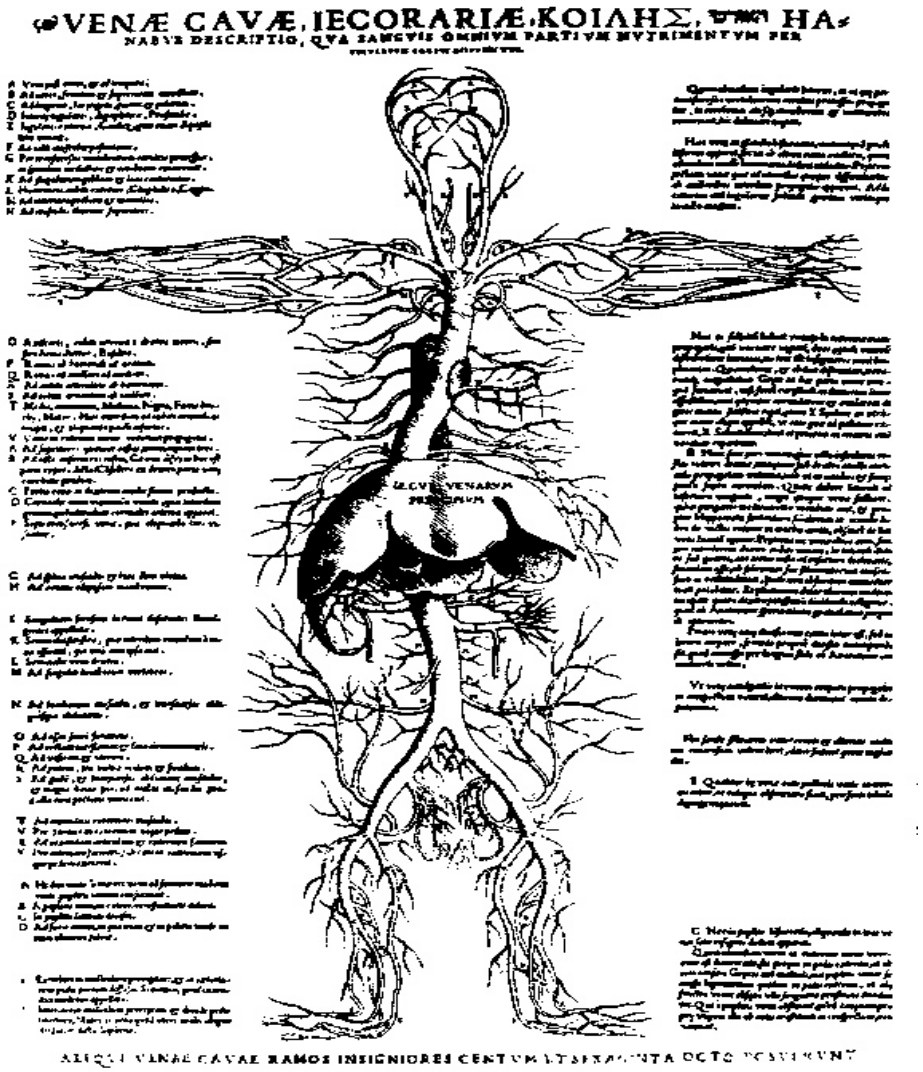
In other words, what we interpret as the human body—its development and processes—is formed by communication networks extending within, through, and beyond the visible organism. [1]
More specifically, the point I want to emphasize in this article is that the human body is also formed within the context of the history of medicine. That is, as the interpretations and images of the human body changed historically, these changes were intimately related to the historical development of medicine itself.

1.2. The Body In Medicine

The history of medicine is inseparable from the fact that there have been, and still are, many different, often conflicting representations of the human body.

The advancement of medicine as science and clinical practice depends, perhaps now more than ever, on a recognition that "the body" which figures in medicine is always a matter of selective representation. Philosopher Michel Foucault referred to this as "discursive historical formation"—suggesting how the history of medicine is related to a succession of different interpretations of the human body, and that we could make the history of medicine more intelligible by following the logic of its various conceptualizations of the body. [2]

The meaningfulness of the body, its life and death, diseases and afflictions, cannot be recognized and understood so long as the body is regarded as nothing but a self-contained material object, reductively conceptualized in terms of a physics of mechanisms, and studied, as if I it were just an object, in isolation from its inhabited world.



1.3. Changing Interpretations of the Body

A concern for the nature of the body is at the very heart of medicine—consequently, the history of medicine calls for an interpretation that sheds light on the history of the body. Such an interpretation, ideally, would bring out essential correspondences between evolving conceptions of the body and progressive conceptions of disease and healing.

This article presents *six parameter*s for interpreting the history of the body as it figured in the history of medical research. I shall concentrate on the advances that distinguish the medicine of the "classical age" from the medicine which began, broadly speaking, in the seventeenth century, and which I call "early modern." But as well as highlighting the limitations of late modern medicine, I will also touch on some very recent advances—new ways of thinking that begin to define what could be called a "post-modern" medicine.

The following parameters represent not so much dichotomies or dualities but something more like a dialectic or stages of a spiraling progression. As the meaning of the body changes through time, the movement of understanding in each case is toward integration and a transcending synthesis of each pair of parameters. In each case, a new perspective is emerging, forming the basis for a new, postmodern, discourse in medicine.

(1) From abstraction to concreteness. The body recognized by medicine in the Middle Ages and early Renaissance was an abstract construct, an idealized projection of speculative reason, an entity the nature of which was reduced to the logic of an intelligible form. During this period "classical medicine" did not directly look at, nor did it really see, concrete, individual bodies. What it saw, in fact. were confirmations or deviations from disease classifications described in its authoritative texts. It is as if medicine looked at bodies "sideways," making only occasional glances that turned away from the established texts.

However, in the seventeenth century, at the beginning of the modern age, medicine began to think of itself as an empirical science, and it began to insist on the need to understand disease concretely by examining individual bodies. But in the final analysis, what we take to be "concreteness" is only a product of interpretation. Today, as we near the end of the twentieth century (late modernity). medicine is beginning to realize that the "concreteness" of its mechanistic paradigm is not an ultimate truth and that, just as classical medicine projected an interpretive abstraction onto the concrete, *lived-in* body, so, analogously, has late modern medicine.

Postmodern medicine is consequently groping toward a new, more adequate concreteness—consistent with the fact that the patient's body is always the site of meaningful experience.

(2) From exteriority to interiority. The body of classical medicine was a very subtle body of humors and dispositions; but the perception of its "nature" conformed more to pre-established classifications than to the truth of its observable condition. By contrast, when, in the early modern period, physicians started really to look at the body, what at first they saw was a gross mechanical body, dense and opaque. The body of early modern medicine was seen as an extremely intricate machine, and it was examined, for the most part, from a very detached, external standpoint. The opening up of cadavers for research and learning was therefore emblematic of a revolutionary change in the way medicine began to look at the body. The once sacred body, surrounded by cultural taboos, suddenly became a worldly machine, a matter of interiority, a profane flesh to be seen into and seen through, a presence conceived as if its mechanisms would eventually be transparent for technological knowledge.

However, late modern medicine has penetrated so deeply into the invisible interiority of the flesh that it has begun to abolish the notion of a boundary separating the body's exterior and interior reality. Body and environment are not only inseparable, they are in continuous interaction, and in continuous interdependence. Current research into the logic of the body's immune processes has already signaled the beginning of a post-modern discourse.

(3) From qualities to causalities. Classical medicine (influenced by early Greek philosopher-physicians such as Hippocrates in the fourth century BC) thought of the body as an association of qualities, a substance timelessly qualified by its various states and conditions. By contrast, anatomical pathology initially promised the possibility of penetrating the density of the flesh and finding "first causes" for all diseases. However, as late modern medicine has strictly followed out the logic of its explanatory models, it has increasingly found them inadequate. The very precision of its principle of causal agency, the very power of its explanatory work—and, subsequently, the very successes it celebrated in understanding and controlling diseases caused by bacterial infections—has enabled it to continue revising the simple concept of agency. Now this principle can be given up. Medical knowledge has advanced far enough to conceive a postmodern alternative.

Better models were eventually found. In responding to virus epidemiology, late modern medicine has finally been able to reconceptualize the principle of simple agency in the language of host environments, communicative systems, interactive fields, local economies, and planetary ecologies. [3] Ultimately, the infectious cultures of biology and epidemiology cannot be isolated from their larger social and political cultures, and so causal explanations cannot be confined to the activities of isolated agents. For modern medicine, the body exists in time and space, a continuous succession of physical states, conditions medicine has long attempted to explain by a causality of spatio-temporal proximities.

But late modern medicine is increasingly finding itself compelled to abandon its model of simple causes and to work out a new model of multifactoral influence, a model for which the network rather than the straight arrow, might be all appropriate symbol.

(4) From states to processes. Early modern medicine abolished the old Aristotelian logic of qualities and set out to understand how the body it was looking at actually works. In its earliest phase, it saw structures and it submitted the body to structural differentiation, concentrating on describing its structural complexity (for example, the layout of the organs). This structuralism may be characterized by saying that late modern medicine increasingly attended to the body's functional complexity and differentiation. By pushing this mechanistic research program to its limits, however, late modern medicine has recently begun to move to a postmodern discourse (a way of thinking and talking about medicine) which can recognize both states and systemic processes. Even so, it should be noted that such a discourse has not yet abandoned an essentially mechanistic way of thinking—and that, in point of fact, very little systems-theoretical thinking in medicine has as yet been driven by the logic of its research to give up the powerful resources of mechanism.

I am not proposing here the total abandonment of mechanistic thinking. However, (a) we must take care not to blur the essential distinction between mechanistic and non-mechanistic models, and (b) we must acknowledge that almost all systems-theory discourse today is still operating within the mechanistic paradigm that has prevailed since the beginning of modernity in the seventeenth century. Moreover, (c) we should continue to work with this paradigm, pushing it to

its limits and seeing how far we can proceed by its light. This is the only way we have to get beyond it.

Nevertheless, (d) we should also at the same time hold ourselves open to alternative possibilities, exploring, in particular, the possibility of systems-models which are not based on mechanistic principles.

(5) From analysis to holism. Whereas classical medicine conceptualized the body as an organic whole, but only abstractly, and only in terms of a pre-established system of categories, modern medicine (in both its early and its late phases) has conceptualized the body more concretely and empirically, but also more mechanistically and more analytically, as a totality of discretely functioning parts.

However, finally able to take up the organicisim circulating in cultural discourse since the late nineteenth century, recent medicine has been laboring to use its analytic knowledge as a basis for understanding the body, once again, in more systematic terms, and as an organic whole. The age of postmodern medicine may be said to begin with a theoretical and clinical commitment to the process-holism of systemic understanding.

(6) From mechanical isolation to systemic integration. Whereas classical medicine thought of the body as an instance of the sacred whole, a register of the cosmological order, early modern medicine could only begin to understand the body empirically and concretely by making it totally profane—reducing it to a mechanism isolated from the surrounding world: something essentially, or virtually, self-contained and self-sufficient. Recently, however, late modern medicine has begun to restore the body to the larger world-order. With increasing success, it has tried to see the body as a self-regulatory system whose functioning is dependent on, and inseparable from, the larger world, and which consequently can exist only in continuous, psychologically mediated interaction with a complex field of social, cultural, historical, and environmental conditions. Working with this model of the body, late modern medicine has increasingly recognized diseases as meaningful epidemiological processes belonging to distinctive life-world "economies."

Thus, research programs in epidemiology are now coming together with research programs in the logic of endocrine and immune processes to establish the need for a postmodern medicine capable of understanding the body in all the dimensions of its systemic integration.

1.4. Seven Models of the Body

Each of the previous parameters can serve as guides for assessing how conceptions of the body have progressively changed through time. This progression demonstrates the historically indisputable power of mechanistic and analytic thinking. But the evolutionary implications of mechanistic models and analytic logic have now been followed out to a point where their inherent limitations are finally becoming apparent. Present research suggests that the future of medicine requires a different logic: a new direction in thinking which is more organic and integrative.

The historical progression points in the direction of a fundamental paradigm-shift. [4] To understand the significance of this change and to sense the new direction it implies, the history of medicine may usefully be conceptualized by reference to a succession of "bodies." If it is possible to speak of an evolutionary logic, a history marked along the way by paradigm-shifts in models of the body,

perhaps the seven models proposed in the remainder of this article will contribute to our understanding of the history of modern and contemporary medicine.

(i) **The rational body**. The body we find represented in the discourse of classical medicine was essentially a rational body, a body pictured in conformity to an aesthetic of rational intelligibility, a sacred and universal body replicating the larger cosmology.

(ii) **The anatomical body**. By contrast, the body which emerged in the clinical and discursive practices of early modern medicine was essentially an anatomical body, a body understood in purely structural terms, a body of organs, displaying the sites for the ancient theory of humours.

(iii) **The physiological body**. Increasingly, though. as knowledge dared to penetrate the veil of the skin and explore the interior it conceals, the body which figured in medical discourse was a physiological body, a body-machine whose structures were seen as mechanisms, and required mechanical explanations of their functions.

(iv) **The biochemical body of cells and molecules**. Making use of old and new technology, analytic medicine began to invade the invisible nature of the flesh, looking with a microscopic eye into the most minute structures of the skin, the musculature, and the organs, and accordingly representing the body as an intricate network of tissues. Yielding to even deeper, and even more analytic, more atomic methods of probing the body of tissues disclosed itself to be a differentiated cellular body, ultimately analyzable into molecular interactions. Because late modern medicine has faithfully and relentlessly followed out the logic of its analytic, atomic method, and new techniques of research have made possible even more subtle forms of analysis, the body of cells was in its turn disclosed as a gross body, concealing a body of much more subtle nature: a body of biochemical processes. The breakthrough to this dimension brings us into the present. It represents a great achievement—and discloses the latest implications—of analytical medicine, the research program whose mechanistic logic has governed medicine ever since the seventeenth century.

(v) **The psychosomatic body** In the early years of this century, however, psychosomatic medicine, encouraged by the contributions of psychoanalysis to our understanding of hysterical conversions, introduced a representation of the body which, for the first time, attempted—albeit with only limited conceptual resources—to break away from the analytic methodology, to break out of mechanism, to break through the ontology of distinct minds and bodies, and to think of the body of medicine in a radically new way.

However, one limitation that has hobbled psychosomatic discourse comes from the fact that, while advocating the unity of mind and body, it has failed to overcome the dualism which isolated this unity from its environments—nature, society, and culture. There is, also, a second and more fundamental limitation, which comes from the fact that it has not sustained the courage of its original intuitive conviction: It talks boldly about a psycho-somatic whole, but it limits the conceptual reference of psychosomatic.

(vi) **The body of psychoneuroimmunology**. (See article by Solomon) Now, as we approach the beginning of a new century, revolutionary research into the logic of immunocompetence is realizing the vision inaugurated by psychosomatic medicine, making visible a body of extraordinarily subtle functions and processes. This dynamic, synergic body is seen as a system functioning in a larger system, a multifactoral network of causes and effects, in which effects can

also become causes. This body cannot be represented as a "substance." It has become necessary to represent it, rather, as a system of organized processes, intercommunicating and functioning at different levels of differentiation and integration.

A growing body of evidence supports a new concept of disease and a much broadened understanding of epidemiology, according to which diseases do not take place in an environment conditioned only by the forces of nature, but occur, rather, in a field of communication—a world of social, cultural and historical influences and meanings. Thus, epidemiologists and immunologists are beginning to understand that the individual body is also a social body, and is therefore inseparable from the social and cultural life of populations.

(vii) The body of experienced meaning. Psychoneuroimmunological research represents a growing body of evidence pointing to the day when medicine will be able to understand how the diseases afflicting us, as well as the body's processes of healing, are sensitive to the effects of bodily experienced meaning, and how, more generally, processes of disease and healing are correlated with experienced meanings. The body which would correspond to this achievement is the body of psychoneuroendocrinology: the body now being brought to light by neurological, immunological and epidemiological research—the first medical body subtle enough to promise the possibility of testable correlations with the phenomenological body of experienced meanings.

For the first time, medicine is equipped with a discourse capable of formulating very specific correlations between (a) the patient's bodily experienced meanings and (b) conditions or states of the medical body, the body which figures in the research and clinical practices of medicine.

However, it must be noted that medicine's success in making such correlations does not depend only on advances in medical knowledge. It also depends on the ability of patients to fine-tune their embodied awareness, their sensitivity to processes of bodily experiencing, and their skillfulness in carrying those processes forward into more articulate, more discriminating meanings. For many centuries, Western culture has denied recognition to this ability and consequently made it very difficult for people to enjoy contacting and working with their body's felt meanings—the intricate meanings carried by their bodies in co-responsiveness to particular situations and circumstances. At long last, however, our culture has begun to recognize, to legitimate, and to facilitate this natural skill. As experienced-meaning processes become more subtle, more intricate, more discerning, it is reasonable to expect that there will be an increasing convergence between the body of medicine and the body of lived experience, due as much to the learning of this skillfulness in articulating bodily-felt meanings as to the achievements of systemic, postmodern medicine.

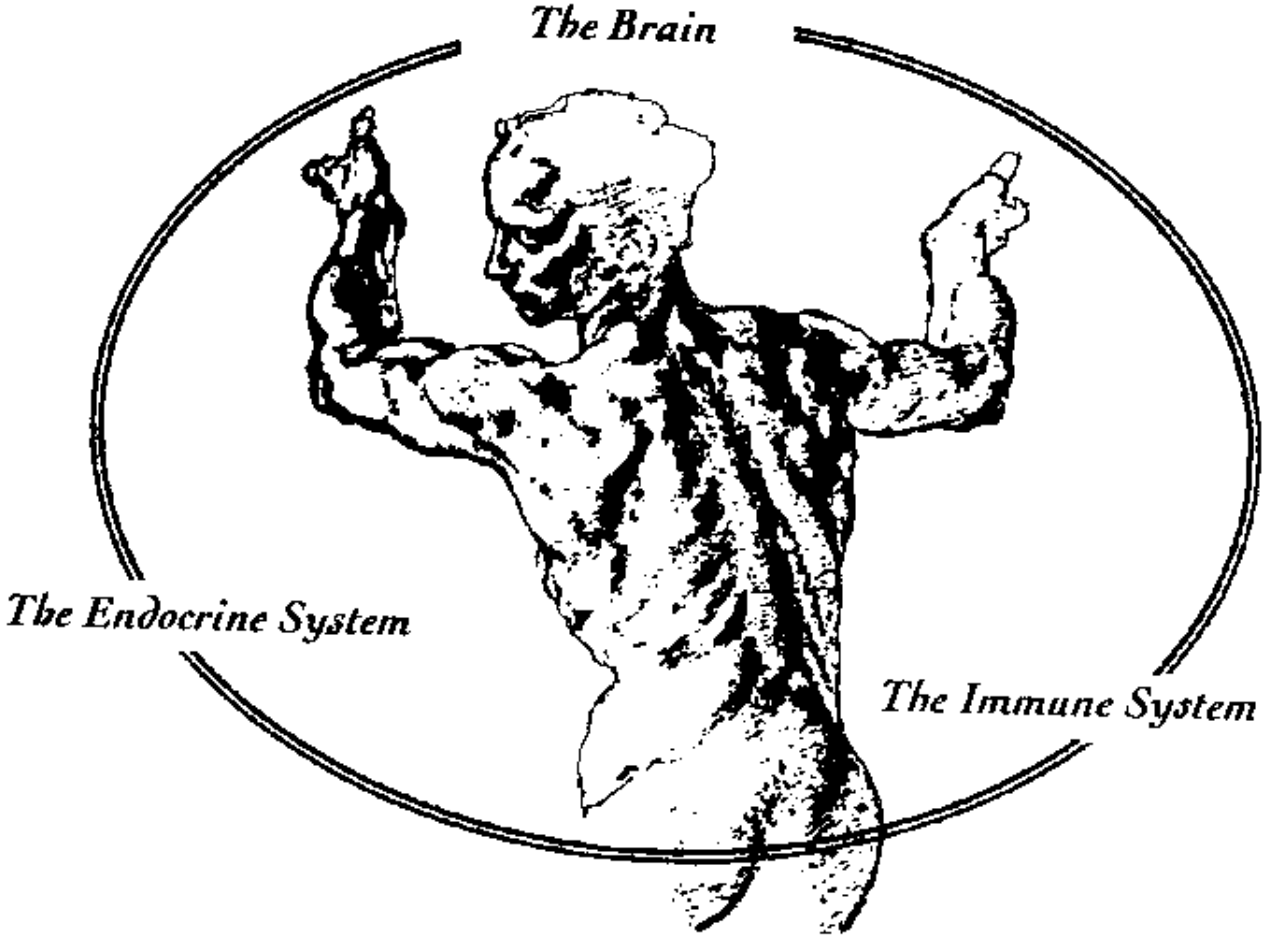
1.5. The Body of Lived Experience

To sum up: the convergence between the body of medicine and the body of experience will be greatly enhanced by a recognition that the human body is more than a biological organism, more than a physical substance—that is, it is also, in short, a "discursive formation." It is inherently organized in terms of intercommunicating processes, and it is shaped or formed by the evolving historical interpretations with which it interacts.

For medicine, the recognition of the body as a "discursive formation" means (a) that it relinquishes the epistemological assumption of naive realism (the assumption that its concepts are observer-neutral and correspond to a totally independent, objective reality); (b) that it comes to terms with its status as a hermeneutical (an interpretive) science; and (c) that its relation to the entity it calls "the

body" is mediated by a network of historical assumptions and representations which are never more than provisional and tentative, and remain always open to reassessment.

By the same token, insofar as patients themselves begin to understand their bodies in this new way, they too will he freed from counterproductive conceptions of the body and may begin to realize the extent to which the body that they present to medicine for diagnosis and treatment is a body of meaningful experience, a body of significant intelligence, inherently informed about itself; a body the very nature of which can be profoundly changed by virtue of each patient's sensitivity and embodied awareness, and his/her own skillfulness in articulating the body's carried meanings. [5]



1.6. The Immune System As Sensory Organ
by George F. Solomon

Psychosomatic medicine, which began with symbolic interpretations of symptoms and with personality typologies of patients with specific diseases, made the leap from mind to body and went beyond "either/or" thinking, but limited itself to a narrow range of conditions and restricted consideration of mediating mechanisms. (For example, the ulcer patient's longing for emotional "nurturance" was interpreted as leading to hypersecretion of gastric juices that are normally released in preparation for nutrition.) It took a new generation of practitioners of behavioral medicine to realize that mind and body interact as *one* and that *all diseases are "psychosomatic*." It took the development of psychoneuroendocrinology and psychoneuroimmunology to elucidate mechanisms underlying this monism. It will take new models to go yet further and truly integrate the experiential with the mechanistic.

Psycho-neuro-immunology – PNI -- ("behavioral immunology", "neuroimmunomodulation") is now a rapidly expanding field concerned with complex bidirectional interactions between the central nervous system (CNS) and the immune system, and also with their clinical and bioregulatory implications. [6] The field arose originally out of observations focused on personality, stress, and emotional distress factors in the onset and course of autoimmune diseases (in which the body's immune system "turns against" the self)--conditions then being found to be associated with "relative immunologic incompetence." This combination, plus growing evidence that distress is associated with the elevation of adrenal cortical hormones (which can be immunosuppressive), led to the hypothesis that "stress can be immunosuppressive."

In the late 1960s, my then provocatively named "Psychoimmunology Laboratory" at Stanford University went on to demonstrate experimentally, in rodents, the effects of both stress (suppressive) and early experience (enhancing) on humoral immunity (antibodies). Going against the prevailing orthodoxy of the "autonomy" of the immune system as responding only to antigenic challenge, these early observations had little impact. It was not until Robert Ader's elegant research on immune system conditioning in the 1970s that the field began to be accepted. Ader paired an immunosuppressive drug (cyclophosphamide) with saccharin and showed that, subsequently, saccharin alone could suppress immunity. Such "classical" conditioning can be mediated only by the CNS. This work (which also has many implications regarding theories of the placebo) rediscovered (with more elegant methodology) observations on the conditioning of immunity made at the Pasteur Institute in the mid-1920s, but that evidence was essentially ignored because it seemed too implausible.

Today, the unraveling of physiological links between immune system and CNS makes correlations between the two systems seem much less far-fetched than they did 25 years ago. Philosophical considerations in science, such as "why" the CNS and immune systems "ought" to be linked, may indeed have heuristic value.

Both the CNS and the immune system relate the organism to the outside world and serve functions of surveillance, defense, and adaptation. (J. Edwin Blalock has called the immune system a "sensory organ", since it responds to signals in the environment to which the five senses cannot react; Walter Pierpaoli has referred to the bone marrow, which "gives birth" to immune cells, as a "morphostatic brain.")

Both systems have memory and learn by experience. Defenses that have gone awry or are inappropriate can produce disease in both systems. An inappropriate fear is called a phobia, and an inappropriate immune response is called allergy. Aggression turned against the self ("retroflexed") leads to depression on the one hand (Freud) and to autoimmunity on the other. Either depression (suicide) or autoimmunity can lead to death. Inadequacy of defense in either system leads, respectively, to emotional or to physical (as in AIDS) vulnerability.

Early life experiences can either inhibit or enhance adult psychological vulnerability and/or resistance to physical disease. Prior experience can lead to "sensitization" or to "tolerance" in either system. (Prior mastered challenges enhance "ego strength", while defeats lead to psychic vulnerability. Very low dose antigenic stimulation can produce immune tolerance while higher dose challenges can produce sensitization/immunity. Gentle handling in infancy enhances and premature weaning suppresses adult immune responsivity in the rat.) Just as "philosophical" considerations can lead to a greater understanding of mechanisms, thinking in non-mechanistic terms, in turn, may bring us to newer models that go beyond the limitations of the mechanistic paradigm.

1.7. Notes & References

1. The human body, therefore, may be considered a discursive formation" (to borrow terminology from postmodern philosopher Michel Foucault). Essentially, this term means that what in fact we call "the body" is in part a product of social discourse—it is formed or shaped by the interaction of the biological organism with socialization processes. See The Order of Things: An Archaeology of the Human Sciences (Pantheon, 1971) and The Archaeology of Knowledge (Harper & Row, 1976). Foucault succumbed to AIDS in 1981. At the time of his death. he occupied a chair in the History of Systems of Thought at the prestigious College de France.

2. See Foucault s The Birth of the Clinic: An Archaeology of Medical Perception (Random House, 1972).

3. See Roger Levin, "Cancer and the Self: How Illness Constellates Meaning", in David M. Levin (editor), Pathologies of the Modern Self: Postmodern Studies on Narcissism, Schizophrenia and Depression (New York University Press, 1987).I want to acknowledge Roger Levin's crucial collaboration in the preparation of this paper, and to thank my friend Wayne Hening, now doing research in the neurology of motor disorders at the Veterans Administration Hospital in Lyons, New Jersey, for his very helpful comments. I also want to give thanks to Don Johnson, Director of the Somatic Psychology Program at the California Institute of Integral Studies, San Francisco, and of the Somatic Research and Education Programs at Esalen Institute, Big Sur. The collaboration on this paper began in June 1988 with George Solomon, thanks to a seminar which Don Johnson organized at Esalen.

4. The shift from structural accounts to functional explanations was an important development, but these functional explanations are still conceived in mechanistic terms; they do not call the mechanistic paradigm into question. In this sense, structural and functional approaches are not as different as they have commonly been thought to be. Although even research programs formulated in terms of processes, systems, and energy can be—and indeed have been—conceived in such a way that they, too, continue the mechanistic paradigm, some current research seems to indicate the need for a genuinely new paradigm, formulated in terms of systems and processes that would he understood *non-mechanistically*.

5. For a more specific, more concrete formulation of what I mean by a call for self-developing practices and learning processes that work with the body as a "discursive formation", see Eugene Gendlin, Focusing (Bantam, 1981); "A Philosophical Critique of the Concept of Narcissism", in David M. Levin (editor), Pathologies of the Modern Self (New York University Press. 1987); "Experiential Psychotherapy", in Raymond Corsini (editor), Current Psychotherapies (F. E. Peacock, 1973). 1st ed. only; and "Experiential Phenomenology", in Maurice Natanson (editor), Phenomenology and the Social Sciences (Northwestern University Press, 1973).

6. George F. Solomon, "Psychoneuroimmunology: Interaction Between Central Nervous System and Immune System", Journal of ,Neuroscience Research, volume 18, pp. 1-9. 1987. See also, Robert Ader (David L. Felter and Nicholas Cohen. editors), Psychoneuroimmunology: Second Edition (Academic Press, 1991).

1.8. Contact Information

David Michael Levin, Ph.D., Professor of Philosophy, Philosophy Department at Northwestern University, Evanston, Illinois 60201, USA. His published works include The Body's Recollection of Being (Routledge & Kegan Paul, 1985) and The Opening of Vision (Routledge, 1988).

George Freeman Solomon, MD, Professor of Psychiatry and Biobehavioral Sciences, Norman Cousins Program in Psychoneuroimmunology, % Dean's Office, UCLA School of Medicine 12-138CHS, 10833 LeConte Avenue, Los Angeles, CA, 90024 USA.

2. WELCOME TO THE MIND-BODY REVOLUTION

By Marc Barasch, Psychology Today, July/August, 1993, pp. 58-63, 86, 90, 92-94

Evidence that the mind and body influence each other abounds. And suggests something much stranger: That awareness isn't confined to the brain; it operates 'nonlocally,' beyond the biochemical links between brain and, say, the immune system. This consciousness evolution is rattling the very foundations of Western medicine.

Anyone who didn't spend this spring in a severely media-deprived locale--an Antarctic substation, say, or the lazily pinwheeling Russian spacelab--has probably heard the news: Rene Descartes, the 17th-century mathematician who shaped the world as we know it, has been officially pronounced dead.

The eulogy was delivered by Bill Moyers, the public television's own Piers Ploughman, via his phenomenally successful TV series and book-cum-transcript, Healing and the Mind. But in truth, the old *philosophe's* stiff--which had lain for three centuries in the halls of medicine like some glass-entombed Lenin--had become a bit of an embarrassment.

Immortalized in *Bartlett's* for his inscrutable, Popeye-like declamation, "I think therefore I am," Descartes was history's most persuasive partisan of the mind-body split, a bedrock notion of modern science. Mental events, the savant declared, occur in a separate domain from those of the flesh. Consciousness has no business in the mean streets of matter. As a result, medical science came to be dominated by a materialism so iron-clad that one 19th-century theorist felt emboldened to quip that the mind's influence upon the mechanism of the body was like "the steam-whistle which accompanies the work of a locomotive engine but cannot influence its machinery."

The problem with this is obvious to anyone who ever had an unseemly thought about their junior-high English teacher and then blushed: "The soul's passions," said Aristotle, who had it right all along, "seem to be linked with a body, as the body undergoes modifications in their presence."

By 1900, medical science had at least begun to suspect as much. Freud and Janet's investigations of hysterical paralysis provided a benchmark of the mind's power over the body. Dr. Walter Cannon discovered in the 1930s that the central nervous system controlled many bodily functions and suggested that it in turn was subject to a regulatory mechanism "which in human beings we call the personality."

Still, if anyone could be credited with shutting off the refrigeration on Descartes' mortal remains and letting the aroma of a paradigm gone bad reach science's stuffed nostrils, it is Candace Pert, Ph.D., former chief of the Brain Biochemistry Section of the National Institute of Mental Health and codiscoverer of the brain's opiate receptors. Subsequent revelations that similar docking sites

for "information molecules" (or neuropeptides) were myriad as stars scattered through the bodily firmament have launched the branch of medicine known as psychoneuroimmunology (PNI), which is busy codifying a self-evident truth: Mind and body have their hands so deep in each other's pockets it's hard to tell whose car keys are whose.

So-called messenger molecules are suddenly turning up everywhere--in the brain (particularly in the centers governing emotion), throughout the immune system, and in organs from gut to gland. Our thoughts and feelings are mediated by neuropeptidesi diseases secrete neuropeptides; neuropeptides may be crucial to the healing response. What Pert proved once and for all is that brain, nervous system, and immune system, far from being incommunicado, are at this very second hunched elbow-to-elbow at the espresso bar of the Chatterbox Cafe, animatedly sharing your most intimate particulars.

I met Pert four years ago when she was in town to speak at a healing conference. I was already well apprised of the mind-body factor, having suffered a hellacious bout with cancer that was accompanied by altered states more colorful that any Pd encountered in a lifetime of Buddhist meditation. Pert was just beginning to venture forth from the autoclaved precincts of official research to more new-age venues, trying out the PNI gospel on an audience more receptive than most of her colleagues. In her flowing orange floral-print dress, slinging her pointer over her shoulder with precision rifle-drill panache, her words ricocheting in breathless spurts, she was like some hip diva of science. The next day, recognizing a kindred glimmer, we decided to play hooky from that afternoon's lectures for a picnic lunch in the mountains.

Though she may tone it down at phlegmier scientific gatherings, Pert at ease seems on the verge of autoelectrocution from a surfeit of cranial wattage. "Emotions exist in two realms," she told me between exclamations about the view from a dizzying curve that sent gravel rattling into our wheel rims. "One is the mind. The other is the realm of living matter. Of course, science expects you to dutifully exclude the soul. But I can't. The whole thing's vibrating back and forth. We're actually talking about music."

She hazarded that each neuropeptide--the list of which has burgeoned from five just a few years ago to over five dozen--may "evoke a unique 'tone' that is equivalent to a mood state." I pictured mind and body as a thousand-octave piano, with every note--from the highest glissando of altruism to the middle-C of fight-or-flight to bass-heavy autonomic arpeggios--as part of a seamless, interdigitated boogie-woogie.

Staggering stuff: What PNI has shown us is that the human being is a walking biological Heisenberg Principle, in which the observer's thoughts, feelings, and attitudes can have measurable effects on physical reality. Within the margins of its homeostatic aloofness, the "It" of our own biology is exquisitely responsive to the "I" of subjective experience.

And these responses are no mere grace notes. Hypnosis, long considered a negligible medical therapy, has been successfully employed to treat children with congenital ichthyosis, so-called fishskin disease--a *genetic* illness. Meditation and relaxation techniques have been shown to affect blood platelets, norepinephrine receptors, and cortisol levels; biofeedback to influence phagocyte activity; mental imagery to enhance natural killer cell function in patients with metastatic cancer. In a now-famous study, David Spiegel, M.D., of Stanford University showed that women with advanced breast cancer who took part in a psychological support group lived twice as long as those who did not take part, a benefit no known drug can claim.

Researchers are beginning to wonder if mind-body effects may even contribute to what physician-essayist Lewis Thomas called "the rare but spectacular phenomenon" of spontaneous remission of cancer. Researcher Caryle Hirshberg, Ph.D., a blunt, no-nonsense biochemist, is the co-author of a near-legendary study that collates some 450 medically documented cases. This startling body of evidence--the One White Crow that disproves the thesis All Crows Are Black--will be published this fall, suggesting that such events, treated in most oncology texts as chimerical (if not unreal as a paper moon), could point to yet-unsuspected powers of body and mind.

When I spoke with her, Hirshberg, hammering on publication deadline, grumped only half-jokingly about having to write her acknowledgments page. "What am I supposed to say?" she asks, referring to her peers' initial skepticism. "Thanks for telling me not to even bother?" I mention a case the late Norman Cousins recounted concerning a San Diego woman whose cancer was so far advanced the tumor was "like a hand grenade under a thin sheathing of skin." The woman had been sent to his office at UCLA Medical School because she was resisting her doctors' urgent recommendations for a mastectomy.

Cousins thought there would be no harm teaching her a few visualization techniques. He showed her a stock mental exercise that usually succeeds in slightly raising the skin temperature of the hand. The woman turned out to be an exceptional subject: Her hand temperature shot up 14 degrees. When she returned to the hospital after two weeks of practicing various meditations, the tumor, to his amazement, had completely disappeared.

"Who knows what mind is capable of?" Hirshberg asks rhetorically. "For that matter, who knows what mind is? Certainly, it's thinking and feeling. But is mind only thinking, body only feeling? I mean, mind feels. Mind is also dreams, mind is altered states, mind is consciousness, consciousness is spirit. It's not like we scientists know.

"Maybe the Dalai Lama knows," she adds parenthetically. "I met him once, and I think if there's a light in the world, he's it. I sometimes think the kind of understanding he has is where we'll have to go to look at what we're calling PNI."

In a recent documentary, as sunlight streams in through the window from the icy, glittering peaks of the nearby Himalayas, the Dalai Lama can be seen bending over a desk, one hand pressing a jeweler's loupe to his eye, the other twirling a screwdriver in the entrails of an old-fashioned watch. "It is my nature," the exiled leader is saying. "As soon as I got a play-toy. . .few minutes later, I try to open. . .see what is inside." He giggles delightedly, holding the watch up for inspection, then turns shrewdly to the camera: "That's the way to learn something." He laughs again.

Try to open. See what is inside. Now imagine a whole society turning its mental jeweler's tools in the innards of the mind, investing 1,200 years in a top-priority, national Inner Space Program. For eras, while the world blustered through the age of steam, spit electricity's cold fire in the face of the night, and unleashed the railing demons of the atom, Tibetan followers of the Lord Buddha sat calmly by the flickering light of millions of yak-butter lamps, calipering the depth and breath of the soul, doing essential R&D on consciousness itself, souping up the spiritual software.

Westerners have viewed Tibetans as Mind-Body Masters on the World's Rooftop ever since French pilgrim Alexandra David-Neel secretly entered Lhasa and returned bearing stories of monks sitting in the snow, drying water-soaked sheets on their naked bodies (a feat she puckishly filed under "psychic sports"). More than a decade ago, Harvard cardiologist Herbert Benson, M.D., best known

for his best-seller, The Relaxation Response, on the medical effects of meditation, decided to investigate.

With the Dalai Lama's blessing, he wired up monks in India's northern foothills with electronic measuring devices while they performed their sheet-drying stunt. To his amazement, their skin temperature rose as much as 17 degrees above normal, even though in such near-freezing weather the body invariably routes blood from the periphery to keep core organs warm. "If an ordinary person were to try this," Benson says, "they would shiver uncontrollably and perhaps even die. But here, within three to five minutes, the sheets started to steam and within 45 minutes were completely dry."

How is such a feat possible? Benson offers that the yogis may have somehow learned to induce "nonshivering thermogenesis," a metabolic state in which the body burns so-called brown fat--a substance thought to be metabolized only in hibernating animals. But he adds, "It's difficult to understand from what source such energy is emanating. By our calculations of the amount of heat generated, there must be an energy source in the body other than the ones we're currently aware of."

Similarly, Candace Pert asked Moyers, "Can we account for all human phenomena in terms of chemicals? I personally think we're going to have to bring in that extra-energy realm, the realm of spirit and soul that Descartes kicked out of Western scientific thought."

And therein lies the rub. Today's mind-body theorists seem peering over the precipice of the worldview espoused in the droll cat-and-cockroach classic, the lives and times of archie and mehitabel:

"i can show you love and hate
and the future
dreaming side by side
in a cell
in the little cells where
matter is so fine
it merges into spirit."

The love-and-hate-and-cells stuff, which would have been difficult to swallow even a few years ago, is now fair game for any PNI investigator clever enough to design a credible experiment. It's the matter-merging-into-spirit part that's become an Olympic triple-axel skating routine on very thin ice.

"There's a great mystery of how thought is translated into material response, and PNI, even though it's the darling of the emerging sciences, hasn't shed any light on it whatsoever," remarks Larry Dossey, M.D., co-chairman of the Panel on Mind/Body Interventions at the National Institutes of Health (NIH).

Dossey's panel falls under the NIH Office of Alternative Medicine, a new government entity that has appeared as suddenly as an April crocus in the courtyard of the nation's firmest bastion of biomedical research. The office's allotment of $2 million of the $10 billion NIH behemoth--"the flea on the elephant, pen-and-pencil money," says director Joseph Jacobs, M.D., the superbly trained half-Mohawk Indian health-care expert tapped to helm what he calls "the Starship Enterprise"--could be used to study anything from acupuncture to herbal medicine to the anti-tumoral properties of shark cartilage.

But it is Dossey's panel that promises to become the Enterprise's glowing, dilithium-crystal core, for its mandate is to zero in on therapies--from hypnosis and biofeedback to exotica like therapeutic touch and prayer--where the driving force of healing is Western philosophy's most debated (and science's most derided) factor the human spirit.

Dossey, who grew up in a hardscrabble, King Cotton Texas prairie town where life revolved around a one-room country church, seems undaunted. In his teens, he played gospel piano for a fiery tent-show evangelist before leaving the farm for college and medical school, then served as a battalion surgeon in Vietnam. After entering private practice, Dossey found himself reading works of Eastern and Western spirituality "insatiably." He took up the practice of meditation, eventually writing a series of well-received books exploring the intersection of medicine and mysticism.

A report of the Panel on Mind/Body Interventions, which Dossey co-authored, loses no time assailing the trepid with the Really Big Questions: "What are mind and consciousness? How and where do they originate? How are they related to the physical body? Why is it necessary to reintroduce mind and consciousness into the modern medical agenda?"

"Let me tell you something," confides Dossey in soft, still-detectable Texas diphthongs. "If we ignore issues of consciousness, it'll be the ruin of alternative medicine. It could wind up just being something used as ruthlessly as synthetic drugs or stainless-steel scalpels. In my opinion, the most important research activity in the entire field will be the investigation of nonlocal manifestations of consciousness."

Nonlocal manifestations of consciousness? Have we fallen off the edge of the map? The panel's report explains that "studies in mental and spiritual healing show that the mind can somehow bring about changes in far-away physical bodies, even when the distant person is shielded from all known sensory and electromagnetic influences. These events, replicated by careful observers under laboratory conditions, strongly suggest that there is some aspect of the psyche that is unconfinable to points in space, such as brain or body, or to points in time, as in the present moment."

The eye comes to a screeching halt seeing such phrases laid out, neat as you please, in an official document of the United States government. These are not the florid, metaphysical ramblings of a 19th-century occultist, but the words whispered in the side corridors of the highest citadel of American rationalism: The mind, it is rumored, has escaped the brain.

"These ideas do have a pretty high Boggle Factor," Dossey admits, but he claims the evidence is mounting. He points to the work of William G. Braud, Ph.D., senior research associate at San Antonio's Mind Science Foundation: In a typical experiment, one person--called the "influencer" was placed in one room, while in a different part of the building a "subject," fingers hooked up to electrodes to measure galvanic skin response, settled into a chair. At randomly selected times, the influencer tried to affect the subject's electrodermal response by, for example, visualizing the subject while repeating, "Relax...relax...." Later analysis showed that the subject's electrodermal responses had varied at the same time as the influencer's thoughts, at a rate 43,000 to one against chance.

Another of Braud's recent studies posed the question of whether people could affect the rate of decay of human blood cells in test tubes *by thought alone*. Red cells drawn from volunteers were placed in a solution with low salt content, which normally would cause them to rupture. The volunteers were told to try to mentally "protect" their own distant blood cells from harm. Astonishingly, measurements made with a computer-linked spectrophotometer revealed that nearly

a third of the participants had succeeded, seemingly, in mentally slowing their blood cells' destruction. The odds here, gleaned from 64 separate sessions, were nearly 200,000 to one.

Overall, Braud has performed more than 500 such experiments, all aimed at detecting the nonlocal influence of consciousness--pure thought--on biological processes as diverse as the spatial orientation of fish, the locomotor activity of small rodents, and the brain rhythms of people. Consciousness, he has concluded, produces verifiable biological effects in distant human 'targets' as well as in bacteria, neurons, cancer cells, nzymes, fungi, mobile algae, plants, protozoa, larvae, insects, chicks, gerbils, cats, and dogs. In human subjects, these "telesomatic" effects occurred even when the target was unaware of the effort. "I very much doubt that mobile algae," Dossey deadpans, "are susceptible to suggestion or the placebo effect." It is doubtful that the majority of Dossey's colleagues will be susceptible to *his* suggestion: that the mind-body revolution is leading inexorably toward a consciousness revolution--one so profound that some long-cherished scientific truisms may have to be subsumed within a much larger, much stranger framework. The heretical theses being nailed to the church door are unsettling: that mental forces can violate the laws of physical causality; that the mind's influence on the body goes beyond the biochemical links between brain and immune system posited by PNI; that there are things that mind can do that a physical brain could not. What Dossey is talking about in a fairly unvarnished way is the science--or as some would have it, the *non*science or non*sense*--of parapsychology, a bastard-turned-prodigal child that may be on the verge of claiming its share of the patrimony.

It's not as if it was ever entirely scratched out of the family portrait. William James, the father of American psychology, spent 25 years examining psychic phenomena, spiritism, and religious experiences, producing a radical empiricism that respectfully made room for altered states. Freud admitted that when it came to such oddities as visions of the future, "attempts at giving a psychological explanation have been inadequate to cover the material collected, however decidedly the sympathies of those of a scientific cast of mind may incline against accepting such beliefs."

Jung, whose early work was influenced by F.W.H. Meyers, founder of the Society for Psychical Research, conceived of the brain as simply a "transformer station": "In the deeper layers of the psyche which we call the unconscious, there are things that cast doubt on the indispensable categories of our conscious world, namely, time and space. The existence of telepathy is still denied only by positive ignoramuses."

But, we might ask...*so what*? Say the human mind can work some inexplicable mojo on algae: It doesn't mean you can sit in a chaise lounge and mentally skim the pool clear of pond scum. But proponents say the implications are sweeping: I hey pertain to no less than the mind-brain connection, the mysteries of healing, and the underpinnings of Western science itself.

In a single stroke, Dossey's panel has resurrected a *bete noir*, a bugaboo, a haint that experimental reductionism has kept from haunting the premises for centuries: "the ghost in the machine" (as Oxford philosopher Gilbert Ryle derisively called the notion of nonphysical selfhood)--a spook that, instead of vaporously passing through walls, could eventually bash in the front door of The House That Science Built.

The question devolves on this: How does attitude influence the brain, and thence the body, in the first place? In which vestibule of our gray matter, on what wetware coat hook, does the mind hang its hat? If, as Braud's experiments suggest, the mind isn't quite "inside" the brain, can it take jaunts around the perimeter? And what is that perimeter? What are the limits--and prerogatives of consciousness?

This is far from the first time the question has come up. Every major religion claims to own and operate the sole franchise. Every world-class philosophy has mud-wrestled with it. Any surgeon who ever unscrewed the lid of the skull, peeled back the dura mater, and stared into the container of vanilla pudding said to include all the ingredients of a human being has had at least one preposterous moment of awe--and utter doubt.

Pioneering neurophysiologist Sir John Eccles, who won the 1963 Nobel Prize for his work on the synapse, once commented that the hair-trigger sensitivity of the brain's intercellular connections suggests "a machine designed to be operated by a ghost." Eccles proposed that the way that consciousness affected the brain might be via psychokinesis (literally "soul-motion"), or the direct influence of thought upon matter. The mind might be like a concert virtuoso tickling the ivories of the brain, performing "cognitive caresses" of the cortical neurons. Fellow brain-mapper Wilder Penfield called it "the ultimate of ultimate problems." He came to believe that "the dualist hypothesis (the mind is separate from the brain) seems the more reasonable of explanations."

I recently attended a Harvard Medical School seminar on the frontiers of mindbody medicine. During the question period, a doctor from Cambridge rose from the audience and described her cardiac arrest during her own Cesarean section. She had had no heartbeat. Her eyes had been taped shut. Still, the obstetrician told her rapt colleagues, "I could see everybody in the room, hear the swearing as they tried to revive me, just as if I were standing at the head of the operating table.

"But I could see nothing was working. My brachial artery had narrowed too much to get a line through my neck. Suddenly I saw the chairman of the department, whom I had never met, reach in and through my abdomen and put his ungloved hand around my aorta. I felt a powerful surge of energy. He held my aorta in this very firm and loving way until it started to beat again." Later, she said, every detail of this account was confirmed by those who were present at her operation.

Michael B. Sabom, M.D., cardiologist and professor of medicine at Emory University, staff physician at the Atlanta VA Medical Center, was skeptical of increasingly common accounts of such out-of-body experiences, or OBEs. He set out to compare a group of heart-attack patients who had never had OBEs to those who claimed that they had. He found, to his surprise, that those who had ostensibly experienced OBEs were able to provide far more accurate descriptions of cardiac procedures, and that some were able to give highly specific, verifiable details of their own particular resuscitations.

At end of his 1982 book, Recollections of Death: A Medical Investigation, he states, "If the human brain is actually composed of two fundamental elements--the 'mind' and the 'brain'--then could the near-death crisis even somehow trigger a transient splitting of the mind from the brain in many individuals? My own beliefs are leaning in this direction. The out-of-body hypothesis simply seems to fit best with the data at hand."

The NIH's Dossey told me, "How mind might operate beyond the physical brain is not comprehensible. But the inconceivable has become commonplace in fields like quantum mechanics. With phenomena like the instant, simultaneous change in the spin characteristics of photons separated by distances of light-years, what I'm calling 'nonlocal mind' is right at home in modern physics. Physicists don't have a clue how things in the quantum world can happen, but they don't question that they *do*. They honor the data."

Indeed, many theorists are looking to the brain-teasing, mind-twisting strange-but-true factoids of quantum physics to provide at least provisional explanations for the mysteries of consciousness. Brian Josephson, who won the Nobel Prize in 1973 for his work on quantum tunneling and superconductivity, has said that evidence for apparent faster-than-light signaling in quantum physics "raises the possibility that one part of the universe may have knowledge of another part--some kind of contact at a distance." Josephson suggests that such interconnections could permit the operation of 'psi functioning' between humans, currently anathema to biomedical science.

"The fact that nonlocal events are now studied by physicists in the microworld," the NIH report adds, "suggests a greater permissiveness and freedom to examine phenomena in the biological and mental domains that may possibly be analogous."

That, according to renowned neurobiologist Gerald Edelman, M.D., is nothing but a load of Mandrake the Magician-class hooey. Edelman and colleagues at Rockefeller University's Neurosciences Institutes are working assiduously on a purely biological theory of how "higher-order consciousness" could be produced in the brain through a reflexive "bootstrapping process" of its own neuronal circuitry.

Edelman, who once planned a career as a concert violinist, sees the mind as an emergent property of brain tissue--"an orchestra without a conductor, an orchestra which makes its own music," in the approving summation of fellow neurologist Oliver Sacks, M.D. "To attempt to explain aspects of consciousness using as-yet-undiscovered physical fields or dimensions," Edelman comments acerbically, "is a bit like a schoolboy who, not knowing the formula of sulfuric acid asked for on an exam, gives instead a beautiful account of his dog Spot.

"Some very good physicists," he adds, "have reached beyond the biological facts and have supposed that [the quantum is] the answer to the riddle of consciousness. This is an off-putting way of proposing physics as a surrogate spook."

Michael Scriven, Ph.D., a philosopher of science who can recall with relish the occasion when, barely more than a graduate schoolboy himself, he argued with Einstein over "whether time could be closed as well as space," finds such dismissals a little glib. "I'm a little irked," he says in his crisp Down Under accent, "about mainstream scientists' knee-jerk reactions to strangeness, as if kangaroos can't be real because *they've* never seen one themselves. It's pathetic to hear Nobel-Prize winners acting like children seeing a ghost at night."

Scriven, who has been around the scientific block (he worked for the NIH in the forties and in the fifties served on the board of the Journal of Mental and Nervous Diseases), is a member of a loosely affiliated group of thinkers who are trying to come up with less reductionist solutions to the conundrums of consciousness. He refers to himself as the "Guardian at the Logical Gates" for the group (dubbed the Causality Project and sponsored by the same Fetzer Foundation that funded the Moyers series.)

"But it's also wrong to say," he hastens to add, "that just because there's something parapsychological out there, everything we know must crumble. The basis of science is so well founded, so built up layer upon layer, that this stuff is no more than a little crack at the edges of some very old, very solid monuments.'

Others think, however, that the cracks could widen into a serious structural flaw. Consider Spiegel's Stanford study, where women with advanced breast disease who attended a psychological support

group lived twice as long as those who didn't attend. Suppose an anti cancer drug were undergoing trials, and the experimental group, unbeknownst to the experimenters, contained a disproportionate number of patients who were also in group therapy. Longer survival rates might not have to do entirely with the efficacy of the pharmaceutical, but with the patients' state of mind. Thus, even carefully designed experiments could be hopelessly, invisibly skewed.

This would be what Larry Dossey calls a "local" effect of consciousness, the stuff of PNI: a person's attitudes, emotions, and thoughts can have effects on their bodies. But Dossey and the Panel on Mind/Body Interventions go yet further, pointing to evidence suggestive of "non-local" effects: that the body may be "influenced by events occurring at a distance from the patient and outside his or her awareness."

If this is true, it could topple the tallest spire on the cathedral of science--the double-blind experiment. Science works by accounting for--and controlling--every variable and influence that could conceivably affect an experimental outcome. What if there are factors that must be taken into account that have heretofore been ruled out as theoretically impossible? For all we know, Dossey says, outcomes could be influenced "by people outside the experimental arena, like well-wishing friends or praying kinfolk. When we look back on our present era, I think we're going to be astonished how naive we were, that we actually believed we could isolate people in such a way that the influence of consciousness could be annulled."

Under his prodding, the NIH's Panel on Mind/Body Interventions has sandwiched into its report a daring call for a Task Force on the Nature of Consciousness, to comprise representatives from every discipline: psychologists, neurophysiologists, artificial intelligence experts, physicists, physicians, and philosophers. Similarly, the professionally variegated Causality Project has already been meeting for three years, aiming for nothing less than a new paradigm of science. Other enclaves--with exotic names like the Bay Area Consciousness Group, the Princeton Engineering Anomalies Research lab (PEAR), and Temple University's Center for Frontier Sciences--are already pins in the sketchy map of a brave new world.

A project is even underway to create an internationally affiliated group of first-class "Consciousness Research Laboratories" that would exchange data and provide replication of each other's work. All the baroque-sounding formulations that have sparked centuries of philosophical wrangling--Descartes' "radical dualism,' Leibniz's "psychophysical parallelism,' Spencer's "mindstuff theory"--may soon move from the Victorian armchair to the cyclotron, the petri dish, the electron-tunneling microscope.

But what species of researcher is going to risk grants, tenure, and professional repute by venturing out into the night with a high-tech jelly jar to try to capture a flitting, hypothetical psychic quark? Typical of a new breed of what might be called experiential experimentalists, biophysicist Beverly Rubik, Ph.D., director of Temple University's Center for Frontier Sciences, has logged time on a Zen meditation cushion and also taught for three years at an institute run by Catholic mystic Father Matthew Fox. Rubik, a well-regarded hard scientist, recently attended a White House meeting on health care in her capacity as advisor to the NIH Office of Alternative Medicine, where she heads a panel on "electromagnetic interventions." The panel will examine everything from electrical therapies used to accelerate bone healing to a "neurobiochemical stimulator" (which, she says, "has created profound changes in animals' brain chemistry and moods"). Her passion, she says, is "how energy fields--maybe including a nonlocal field of consciousness itself--interact with life."

Like a number of her Causality Project colleagues, Rubik feels her various spiritual sojourns have given her an inside track on the mind-brain puzzle. Her accounting makes it sound as if Descartes, last seen at his recent, merciful public interment, may yet shake off the clods of soil to meander among the scientific living. "I agree Cartesianism is dreadful," she muses, "but there *is* something immaterial about who we are. Maybe we'll need to go back to Eastern mystical concepts like an 'etheric' or 'astral' energy domain."

Clearly, these ideas--particularly as they emerge from the belly of what looks suspiciously like a new-age Trojan Horse wheeled in sometime around the dawn of Aquarius--will irritate some sensibilities. "Media Blitz for Mind/Body Malarkey" blared a recent headline in a scientific muckraking newsletter called Probe. The article took aim at what it held to be the moonier aspects of Moyers' TV series, which it called "seductively anti-medical, anti-scientific, and anti-rational." Its claim that "a campaign has been launched to radically change and spiritualize America's science-based medicine" received wide press coverage.

"It's not as if anyone's saying science is completely *wrong*," counters Beverly Rubik. "Conventional science is appropriate within a conventional framework. But there can be other sciences which exist outside of that box. We need multiple ways of inquiry that accord with--and I realize this will sound odd--our levels of being. Our usual practice of science is based on the lowest common denominator of human consciousness: of feeling separated from the rest of universe.

"What's missing," she says, "is attention to the inner state of the investigator. We've been pretending we're neutral, playing dead, putting our feet in concrete shoes and saying we can't jump. It's time to try on some different footwear."

One Causality Project member told me, "the study of consciousness may require scientists who are willing to risk being transformed in the process of observation." Fetzer Foundation president Robert Lehman concurs: "We'll need investigators who can work more according to an old medieval notion: that to observe nature's deeper secrets, you must personally strive to create 'eyes to see, ears to hear.'"

The Buddhist monks whose meditations raise their skin temperatures are not just performing a stunning biofeedback experiment but are, they tell us, practicing an inner science of compassion. The purpose of their inquiries into the body's most arcane chemistries is to transcend divisions between self and other, subject and object--dualities that one Buddhist translation refers to as "primitive beliefs about reality." Similarly, physicists at Princeton's PEAR lab, whose experiments seem to indicate that mind may affect subatomic particles, have concluded there is now "a need on the part of science to soften the boundary between 'I' and 'not I.'"

The Buddhist monks, and increasingly some adventurous physicists, biologists, and doctors, represent a radical new model of science, one that does not posit inviolable distinctions between spirit and matter, perceiver and perceived. The new paradigm may well deem any models of reality that deny the intersubjectivity of existence to be fundamentally *un*scientific.

The glory of science has always been its commitment to "follow the data" on a quest for the unadorned, replicable, verifiable truth. But what if the data have begun leading us to a truth more marvelous than we, in our scientific "reality" of isolated egos, dead physical nature, and decoupled mind and body, have imagined?

Here at the close of the second millennium, sometime between the world-fragmenting fall from Babel and the Last Trump, we search for a unifying Theory of Everything, still ignorant--in some ways, willfully--of where we ourselves fit into the astonishing world of cells, particles, and parsecs we have discovered. Too often, perhaps, our measure of mind, body, and nature has been a little like pre-Columbian maps of a flat Earth: cutting off boundaries at the visible horizon, ignoring the Mercator projections of the soul, consigning the psyche's deeps and expanses to "Here Lie Dragons."

Medicine, once the crown jewel of reductionist scientism, has improbably opened up an unexpected vista. Its newly discovered mind-body pathways are leading to the largely unexplored terrain of the human spirit. We seem to suddenly be on the cusp of a moment foreseen by Claude Bernard, the founder of modern physiology: "I have conviction ' he wrote, "that when Physiology will be far enough advanced, the poet, the philosopher, and the physiologist will all understand each other." Surely, the late Buckminster Fuller--syncretic thinker extraordinaire--would have understood. Asked where a proper investigation of the human condition should commence, he answered without hesitation: "You start with the universe."

3. THE HOLOGRAPHIC BODY

By Richard Leviton

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Is our entire body, as acupuncturists, reflexologists, iridologists, and others claim, mirrored in its parts?

3.1. Introduction

One evening last Spring I felt daring, and so I set forth for the offices of Ghanshyam Singh Birla, founder and director of the National Research Institute for Self-Understanding. Birla, a slender man in his late forties, holds a Ph.D. in occult sciences from Agra University in India. His specialty, which he's been practicing in Montreal since 1970, is Samudrik Shastra, the "science of human morphology"--that is, reading the signs of the body, particularly of the palms.

Birla, trimly attired in a Nehru jacket, affably received me in his office. Ink prints of my palms lay on his desk. He took my actual palms in his hands and made squiggles and crescents on them with his pen. The intricate network of palm lines, Birla explained, represents a personalized signature engraved on the hand tissue by the nervous system.

Palmistry in its purest form, he continued, is "a set of investigative principles meant to reveal man's own nature in his continual search for himself. " There is a consistent correlation between the way a person thinks and acts and palmar morphology. This correlation makes palmistry "a very useful tool to help a person understand himself better and to learn to rechannel his efforts." What can my palms reveal about my current physical health? I asked him.

"In your case the Mercury line, which is the origin of health and self-expression, has had many interruptions. These show up as knots or islands." Birla continued his skillful etching on my palms. "Your living conditions in your past three lives were subject to many ups and downs. In an insatiable quest to find yourself, in many cases your food habits were not at all healthy. But you learned one thing for sure, that you cannot afford to live like that again. Your intestinal health must

now be watched because as a system it is inherently weak. All the past obsessions, emotional intensities, and hurtful dispositions have piled up, overtaxing the digestive system."

He was right. My digestive system was wobbly at times. That night, as our meeting continued for several rapt hours, Birla gave me many other interpretations. I had never suspected that palmistry had such a depth of penetration and interpretive finesse, that it could draw a morphological gestalt from flexion creases. "For each of these lines and mounts we can compute some fifty technical observations," Birla claimed.

The hands speak for themselves and most eloquently when we master the grammar. The palm is a hologram, I realized, and as a hologram palmistry is not unique because, as I would learn, as many as eighteen different ' 'body maps" have been described. In each, complete information about the mind-body system is holographically encoded in miniature in one body locale, such as the eye, foot, hand, even the ear.

Could the concept of the holographic body, which is essentially a new mind-body paradigm in its infancy in the West, have a tremendous positive effect on the future of Western medicine and noninvasive therapies or is it an interesting but ultimately sterile mental exercise?

3.2. The Holographic Paradigm

The holographic paradigm today enjoys increasing popularity and application as a versatile interpretive metaphor. It was originally founded on a technical development in optics. Dennis Gabor discovered the mathematical principles for holography in 1947, which won him the 1971 Nobel Prize in physics, but it wasn't until the 1950s that laser optics would demonstrate the remarkable features of the hologram.

A hologram is a three-dimensional photograph made with a laser. A wave field of light scattered by an object--an apple, for example--is recorded on a glass plate as an interference pattern. The plate (or hologram) is comprised of intersecting wave patterns like ripples in a pond, except that they seem like meaningless swirls and contours. The virtual image of the original apple is regenerated as a projection when either coherent light (laser) or ordinary light (in more recent developments) is shined on the hologram.

The hologram has several key features which make it immediately useful as an extended metaphor, if not model, of reality. First, holograms have an enormous capacity for information storage in a small space, something like 10 billion bits of information encoded in contour lines in one cubic centimeter of film. Second, the information is distributed throughout the system, such that if the hologram plate is shattered, a single fragment will regenerate the original image with only a little loss in depth-of-field and resolution.

Third, by changing the angle at which the laser strikes the photographic plate, multiple images can be layered on the same surface like interpenetrating or overlapping realities. The hologram excels at encoding and decoding wave pattern frequencies and acts like a lens to translate the "frequency blur" into coherent images.

The holographic paradigm was born when the neurophysiological research of Dr. Karl Pribram of Stanford and the theoretical physics of Dr. David Bohm of London's Birkbeck College were creatively fused in the mid-1970s. The theories of Pribram about brain function and of Bohm about

the holographic universe were radical and very much against the grain of conventional scientific models.

Pribram postulated that the brain stores and retrieves information, or memory, holographically and not locally. Bohm rejected the randomness of quantum mechanics and proposed a holographic universe which he called the implicate order. The implicate order was the frequency domain, or blur of wave patterns, that enfolded everything--time, space, past, present, future, all opposites. Our apparent world, Bohm said, is a holographic regeneration, or unfolded explicate order, of this primary frequency realm. The dynamic relations between the two Bohm called holomovement.

The theories of Pribram and Bohm have generated great interest in the application of holographic concepts to our understanding of consciousness and the universe. "Thus a new holographic model is being developed which emphasizes the interdependent, parallel, and simultaneous processing of events, " commented psychiatrist Dr. John Battista in Ken Wilbur's anthology The Holographic Paradigm (Shambhala, 1982).

The implications of holographic modeling for humanistic psychologies is vast and exciting. "Every aspect of the universe seems to be part of some larger, grander being, and more comprehensive system," offered psychologist Ken Dychtwald. "Each particular aspect has the ability to be intimately knowledgeable about every other particular aspect within the master hologram." In the holographic universe, or brain, there is instantaneous cross-correlation.

The holographic paradigm may vindicate many traditional interpretive holisms, such as palmistry, iridology (seeing the whole body in the iris of the eyes), reflexology (the bottom of the feet and the hands), and acupuncture, whose energetic claims have never dovetailed comfortably with conventional Western medical models. Could it be that each of these disciplines is a holographic microsystem, or body map, encoding a full dossier of mind-body information?

3.3. The Mind at the End of the Palm

Palmistry, or Chiromancy, has roots in the ancient Vedas of India 4,500 years ago. "The hand is the most detailed, reliable, and accessible area of the human body for morphological analysis," says Birla.

Samudrik Shastra outlines a complete geography of the hand. The conceptual system is vast and, for the West, controversial because it correlates consciousness and energy patterns with morphology in the context of the unconscious, reincarnation, karma, astrology, and mental patterning. This complex drama is played out on the hands.

According to palm readers, the passive or inactive hand reveals inherited traits, unconscious habits, and experiential memory. It holds, says Birla, the "threshold image with which the present life was ushered in and contains the blueprint of one's destiny created by our own free will. " The active hand (the one we write with) represents current trends in refining or abusing the inheritance.

The palm has three major lines representing the heart, head, and life energies, or emotional, mental, and physical strengths, but these are considered unconscious manifestations. There are also eight minor lines, ten mounts, which correspond to the planets, the twelve phalanges of the fingers reflecting the zodiac, and the thumb, which shows the dynamic interplay of will, reason, and love. General hand shapes are sorted into seven categories, such as spatulate, conic, and philosophic, indicating different evolutionary patterns.

What is particularly intriguing is that to an extent the lines can change as we adjust our living, thinking, and feeling patterns--as the "trend of mental thought" changes. Grooves may run deeper or smoother, broken lines may be mended, knots may dissolve. The active hand will register changes in three to seven months while the inactive hand will adjust in one to three years. More frequent fluctuations in mental attitude are registered by tiny horizontal lines in the active hand.

According to palmistry, such interactive imprinting is possible by virtue of the primacy of the mind over matter. It is the mental gestalt that designed the palmar template in the first place, says Birla. "Thought energy constantly has a concrete effect on matter. Through the palm marking we can trace our way back to these actual thought patterns, both conscious and, more importantly, unconscious, that gave rise to the physical effects. Thus the whole body can be read. The final emphasis is on prevention of problems through more informed choices of action.'

The ancient Chinese also developed a complex science of hand analysis called Shou Chen Tuan, translated as cheirology, according to Shifu Terence Dukes in Chinese Hand Analysis (Weiser, 1987). The operative concept is called graduated materiality.

"This refers to a fundamental view of existence which sees all things as representing various degrees of interconnection between the five elements," explains Dukes. "The recognition of such patterns within the hand and the capacity to interpret them constitutes the basis of cheirology."

The conceptual demands and belief structures of both Indian and Chinese palmistry grate against the Western medical model of reality. They are often dismissed as "handjive and a pseudo-science," as anthropologist Michael Park noted in the magazine The Skeptical Inquirer.

Park claimed that dermatoglyphics, the police science of fingerprints and flexion creases, is the true study of the palms and that classical palmistry is a quasi-mystical offshoot lacking any tangible correlations with modern genetics research. "It seems clear enough to me that the scientifically established connections between palmar and digital features and other aspects of individual biology offer no positive evidence in support of the relationships advocated by palmists." Andrew Neher in his Psychology of Transcendence (Prentice Hall, 1980) is similarly dismissive. "There seems to be no evidence in support of palmistry as a valid method of determining personal characteristics," he concludes.

3.4. Meridians in the Hands

The palm is host to another body map, though one less esoteric and easier to validate. In 1971 the Korean physician Tae Woo Yoo announced he had discovered a complete, though miniaturized, fourteen-meridian acupuncture system in the hands. He mapped out 345 treatment points, bilaterally, on the hands, and called the new system Koryo Sooji Chim. Today it has gained an enthusiastic following in Korea with over 3,000 practitioners and about a dozen in America. One is Dr. Joe Burstein, a hand acupuncturist for ten years, practicing in Chestnut Hill, Massachusetts.

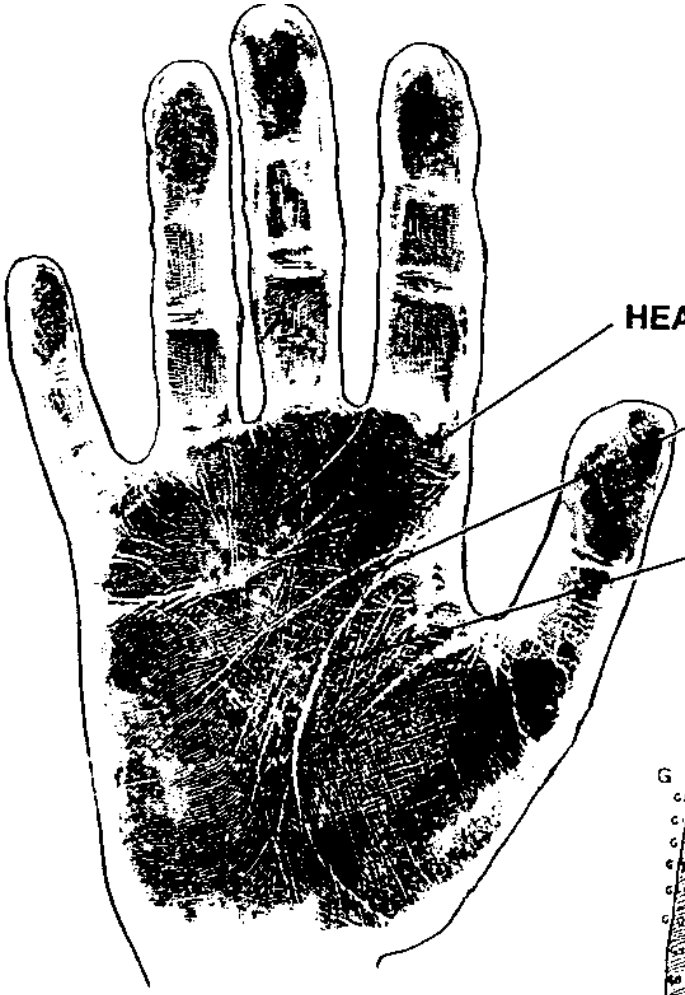
"This system was developed by Dr. Yoo when he was attempting to treat his own intractable headache," comments Burstein. Yoo mapped out the meridians and treatment points on both hands and also made a corresponding hand map of all internal organs from tongue to large intestine.

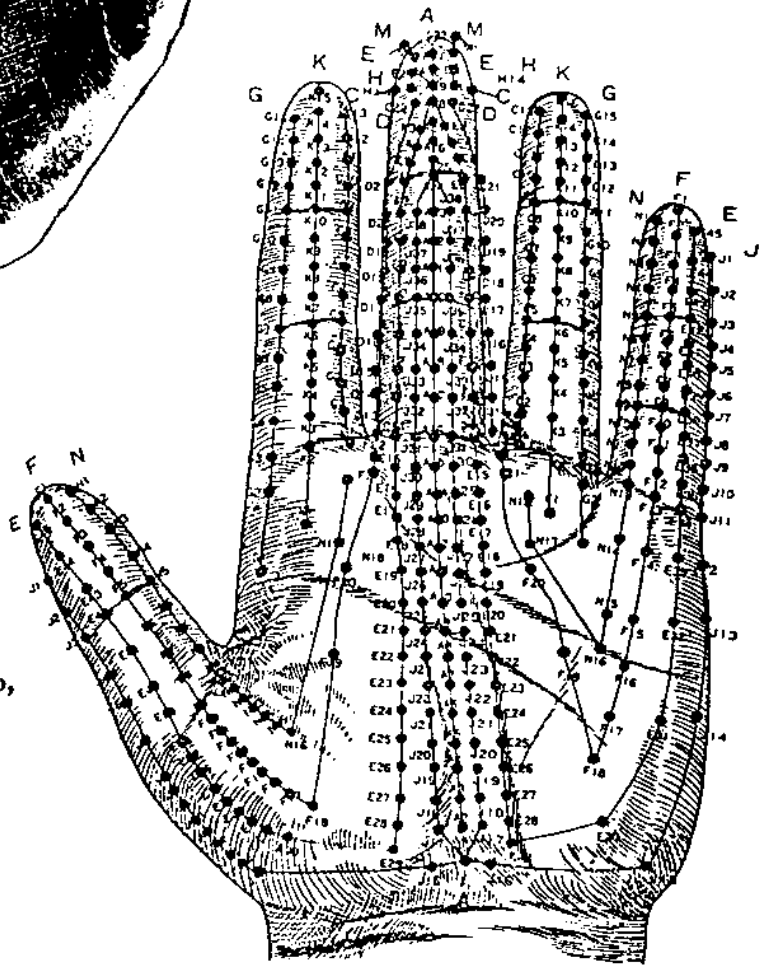
Surprisingly, Yoo's model has not been regarded as controversial. Rather, studies performed in Korea and Japan have validated his postulated hand system. For instance, abdominal temperature

distribution for a client diagnosed with "liver excess" was recorded with infrared film before acupuncture treatment. Fourteen minutes later, after the insertion of thin hand needles 1 millimeter deep, the photo revealed the liver temperature had normalized and the liver excess had been ameliorated.

The capabilities of Koryo Sooji Chim for treatment are at least the same as whole body acupuncture, comments Burstein. "In my experience there are times when I don't get the results from regular body acupuncture but hand acupuncture works great. I have no idea why."

Left, the traditional interpretation of the palm begins with the heart, head, and life lines, representing emotional, mental, and physical capacities.





Right, a recent body mapping of the hands, developed by Korean physician Tae Woo Yoo, shows a complete acupuncture meridian system.

3.5. The Zones of the Sole

What we see on the feet is a mirror image of the human being itself, body and soul. We can use the feet like a map," explains Franz Wagner, Ph.D., of the Institute for Integrative Bodywork in Austria and author of Reflex Zone Massage (Thorsons, 1987).

Wagner is referring to reflexology, or zone foot therapy, which postulates a holographic map of the entire body imprinted on the feet and hands. Reflexology, based on formulations developed by an American physician in the early 20th century, lends itself to a striking visualization: The two feet can be seen superimposed over the body or the internal geography of the human can be seen miniaturized within the confines of the feet. Either way it's a hologram

The practice of foot-massage for well-being and relief of symptoms has its ancient roots in India, China, and Egypt, and in 1580 two European physicians published information on zone therapy, or indirect treatment. In our time it was an ear, nose, and throat specialist at St. Francis Hospital in Hartford, Connecticut, William Fitzgerald, who outlined the model of zone therapy in 1913.

Fitzgerald, drawing on clinical observations, divided the body into ten longitudinal zones running like grid lines from head to hands and head to feet. His diagram portrays the human torso as if it were run through a bread slicer. A particular zone is an energy-influence area that includes everything in that body region from skull to toenails.

"Everything that happens in a specific zone of the body affects and is influenced by the organs of the body within that zone," explains Wagner. "Disturbances in the flow of energy through these zones can be treated by massaging the feet." The feet and hands both contain a composite two-dimensional body map in which the reflex zones are sited according to anatomical realities. The body's right half is reflected in the right foot while paired organs, such as kidneys, lungs, and ovaries, are shared between the feet. In the reflexive geography of the foot the head, sinuses, and neck are reflected in the toes, the intestines, coccyx, and bladder in the heel, and the principal organs in-between.

Since Fitzgerald's pioneering studies seventy years ago other reflexologists have refined and popularized the system, including the American Eunice Ingham (Stories the Feet Can Tell, 1938) and Englishwoman Doreen Bayly (founder of the Bayly School of Reflexology).

Reflexologists point to numerous case studies of rapid and remarkable improvement of physical complaints through foot or hand zone massage. Yet there is a widespread uncertainty as to the cause or mechanism of this healing success.

"On the one hand, experience has shown that the massage is extremely effective. But there is no adequate explanation of why it is that certain parts of the body correspond with others," notes the Dutch reflexologist Astrid Gossman- Legger in Zone Therapy Using Foot Massage (C.W. Daniel, 1986). Nicola Hall in Reflexology: A Patient 's Guide (Thorson's, 1986), suggests that the energy field around the feet is "diminished" when there is an imbalance in the body area corresponding to the reflex area. Some reflexologists also postulate that the sedimentation of calcium crystal deposits in foot reflex areas, which they often notice in their massages, are possibly correlated with nerve endings and may indicate energy blockages in the body.

For Bill Flocco, director of the American Academy of Reflexology in Los Angeles (which offers 100-day certification training programs), congestion in a reflex zone is like corrosion in a car battery.

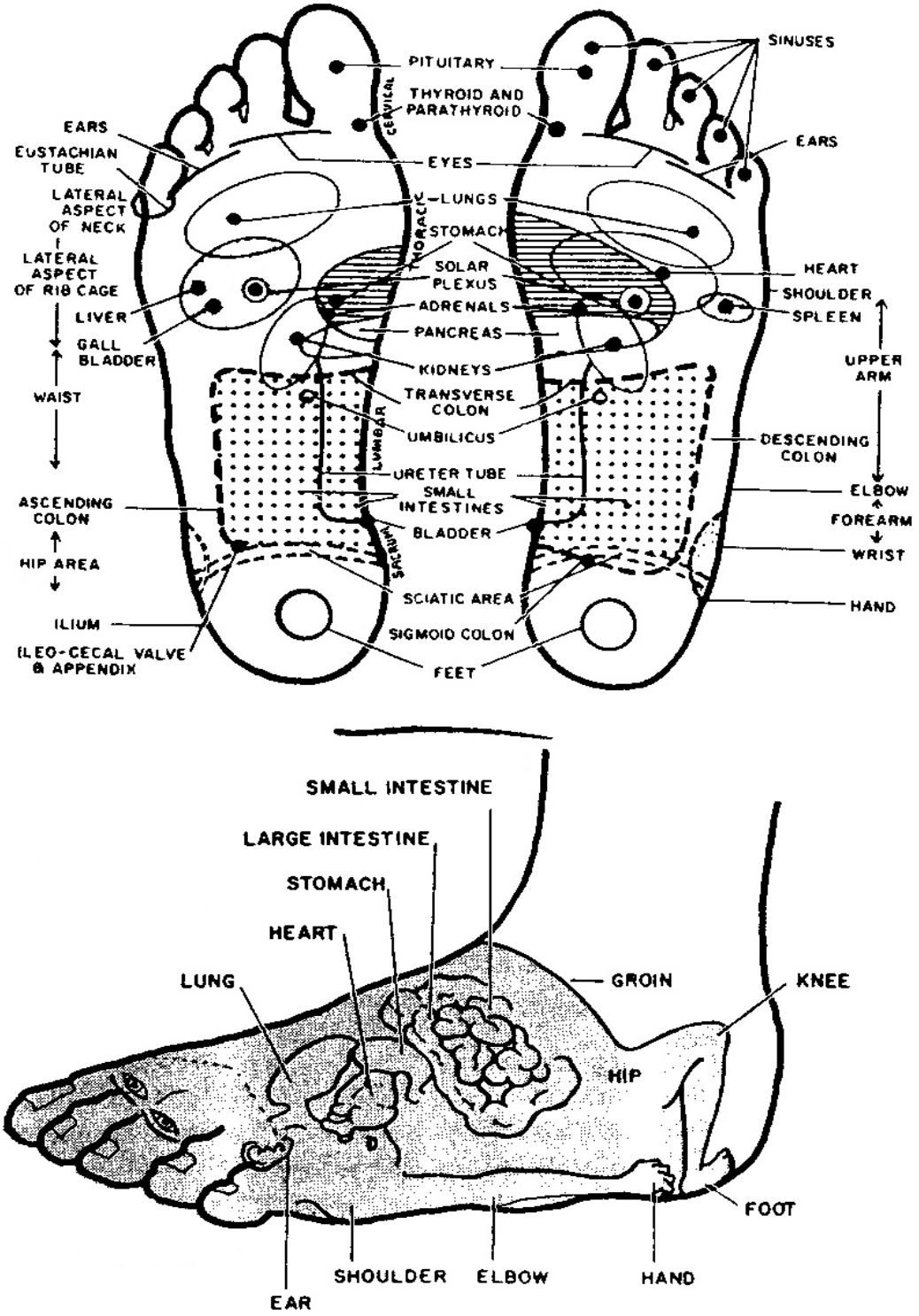
"The car starts rough because that corrosion inhibits the energy flow. When you clean off the battery corrosion the car will run smoothly again." Congestion from the body accumulates in the foot and hand reflex areas because they represent the gravitational end-point of circulation, says Flocco. Each foot itself has 7,200 nerve endings, which have extensive interconnections through the spinal cord and brain with all body areas.

"We help clear out these accumulated energy blockages so that the body in its wisdom can heal itself. The reflex zones give us an immediate and current report on body blockages. By reflexing that area, breaking down congestion, relieving tenderness, gently, gradually, we break down the energy flow inhibitors in ways that science has not been able to explain. "

Contemporary reflexologists don't know how their system works but Flocco notes a possible overlay between foot zone areas and the twenty-eight points from six acupuncture meridians that have been mapped out on the feet. However, for reflexology, "The entire foot corresponds to the body whereas these acupuncture points represent the beginning or end of whole body lines. So it's two different though equally valid maps."

Reflexology, with its diagnostic and therapeutic modalities, has not aroused the kind of strident medical opposition other disciplines like iridology still does or acupuncture did a few decades ago. This might be because its empirical results with a multitude of symptoms are hard to refute.

One criticism leveled against the reflexological model by Neher is that because the acupuncture treatment points for a specific organ do not correlate with the reflex zones, one system must be invalid. "This lack of correspondence is indicative that at least one of the two methods has assigned key points arbitrarily. There seems to be no evidence that foot reflexology has any diagnostic or therapeutic value other than placebo," he says.



Reflexologists posit a complete map of the body in the feet, though they are unsure why the system works.

Charts courtesy of Dr. Ralph Alan Dale, Dialectic Publications, Surfside, Florida.

3.6. The Little Human in the Ear

Of all the remote acupuncture sites used to alleviate chronic pain, one of the most controversial areas is the acupuncture microsystem located on the external ear," states psychobiologist Dr. Terry Oleson, assistant clinical professor in the Pain Management Clinic at UCLA's School of Medicine in Los Angeles. "Auricular acupuncture has proved effective for the treatment of chronic pain, narcotic withdrawal, smoking, weight control, and hearing loss."

Specific acupuncture points for the relief of medical disorders were recognized on the ear 4,000 years ago in the Yellow Emperor's- Classic of Internal Medicine, but it wasn't until the late 1950s that the Chinese published an "ear map" that charted a complete system on the ear and not just the end-points of full-body meridians. However, a Frenchman got there first.

The French physician Paul Nogier is credited with the discovery and diagramming of a complete acupuncture microsystem on both ears, which he announced in 1957 in his Treatise of Auriculotherapy. Nogier also made an anatomical map of a miniature human, or homunculus, superimposed on the ear, which he envisioned as an inverted fetus. The head faced downwards toward the lower lobule, the feet were at the ear s upper rim, and the body in-between. The little human in the ear, says Oleson, is viewed as a person standing on his head, arched backwards, with his back to his internal organs.

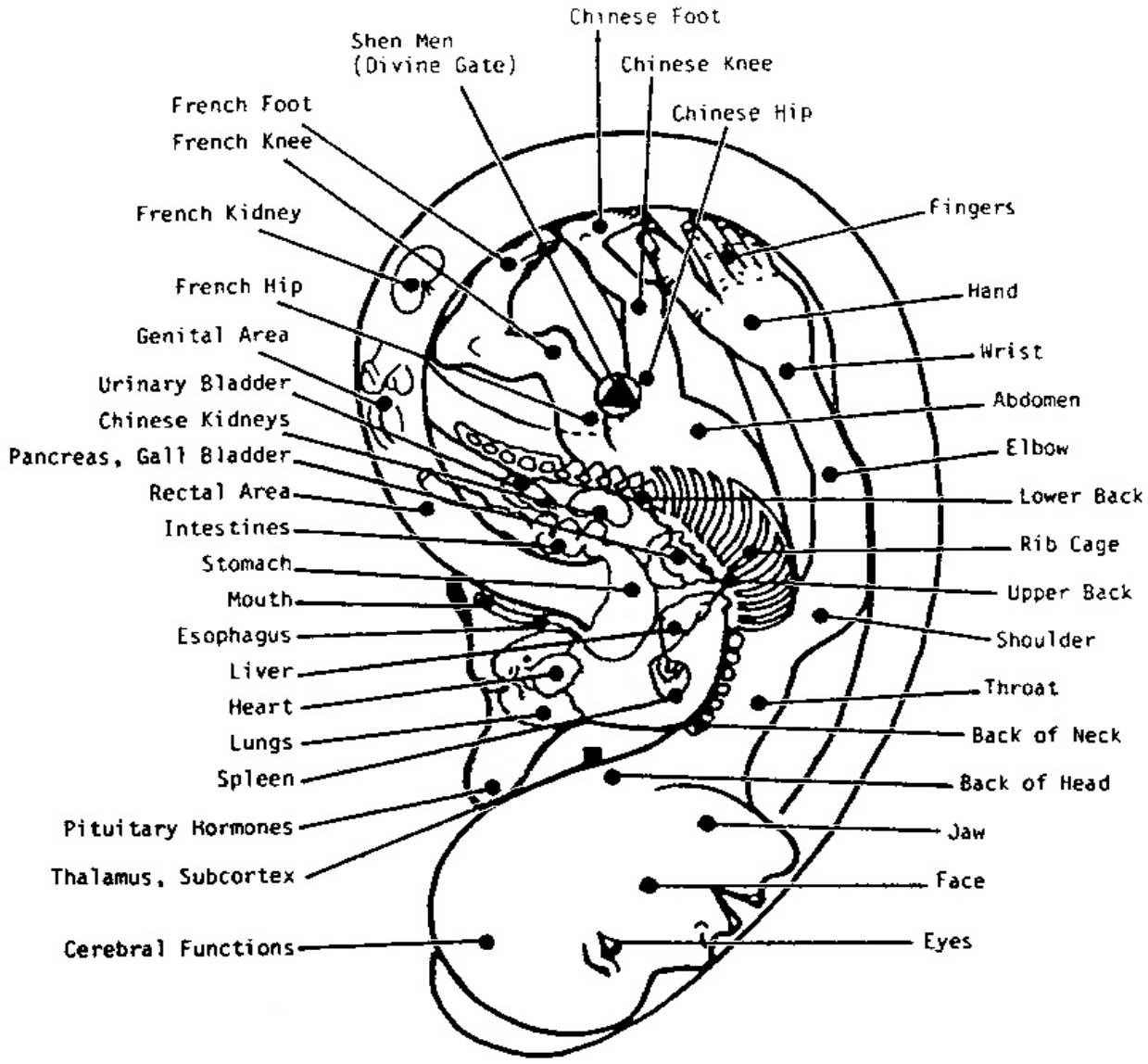
The homunculus in the ear is more than a peculiar revival of a medieval medical concept. It is also more than metaphor. It's another way of stating the ear is a hologram of the whole body. Maps of the body have also been demonstrated in the brain.

"Neuroanatomists have known for some time that there is an orderly representation of localized areas of the body at specific areas of the brain," explains Oleson. "Of all these brain areas, the homuncular arrangement of evoked neural responses in the thalamus most corresponds to the inverted fetus pattern represented upon the ear."

Since Nogier's discovery, Chinese acupuncturists of the Nanking Army Ear Acupuncture Research Team have provided significant verification of Nogier's conceptualization of the human ear, through 2,000 clinical case studies. In fact, the Chinese discovered some points not in Nogier's atlas and even today there are significant variations between the two systems.

Various pathologies, both French and Chinese acupuncturists learned, could be successfully diagnosed through the ear map. Research conducted by Oleson and associates and reported in 1980 concluded, "Enhanced tenderness and increased electrical conductivity at localized areas of the auricle exhibited highly significant correspondence to areas of the body where subjects reported pain or some pathology." In one double-blind study, physicians conducting auricular diagnosis showed a 75.2 percent accuracy rate.

Oleson sees the same inverted-fetus-of-the-ear motif reiterated in the body holographs of brain, hand, and feet. "In the brain the homunculus is organized with the head parts lower than the body pans. It's always inverted. My theory for how it works is that there are nerves that connect to the ear from specific parts of the brain, which is organized like a holograph. The ear holograph is, logically, connected to the brain holograph which itself is connected to the whole body. The way we use the ear to affect the rest of the body is by working through the brain holograph. "



Treating parts of the body through acupuncture of the ear has been developed by the Chinese and French, who don't always agree on specific points.

3.7. The Geography of the Eye

Iridology, or iris diagnosis, like palmistry has a long if poorly chronicled European past. Ophthalmo-Somatic Analysis, as iridology is called in Germany where much of the current research comes from, was recognized by Hippocrates, the Medical School of Salerno, and Philostratus. The German Phillipus Meyens in 1670 presented a systematic correlation of iris and body regions in his Chiromatica medica.

But it wasn't until the Hungarian physician Ignatz von Peczely formulated the topology of the iris signs and organic disease in 1881 that iridology found itself on a formal footing. The Swedish Liljequist in 1893 extended von Peczely's indications, and he was followed by many others. In

America the foremost proponent, author, and lecturer for iridology has been Dr. Bernard Jensen in Escondido. California.

The eyes represent the end-weaving result of your genetic background," Jensen notes. "Whatever the genetic pattern your eyes take, that's what you have for your whole life." Iris topography is an early-warning system more capable of reflecting lifetime strengths or weaknesses ("risks") than indicating current conditions. The morphological terrain of the eye, Jensen says, was imprinted prenatally, much as the inactive hand in palmistry registers inherited tendencies. "Iridology is a means of getting there before the problem has to be taken care of. It takes twenty years to develop a cancer. Where was the doctor when it began?"

The iridologist studies iris tissue, color, shape, structural patterns, pigment, signs, and minute changes, noting its lovely bioarchitecture of "streams," "flowers," and "jewels," says Bill Caradonna, a registered pharmacist and now vice-president of the National Iridology Research Association of Santa Fe, New Mexico.

"Each gland and organ has its place in the iris. It's a slow-moving picture, a genetic map and lifetime x-ray. We can predict where a person is headed, what the risks are. Then what we do with our environment and health makes us either live out or avoid these risks. We can work out a plan for preventive medicine, be it through nutrition, relaxation, or bodywork .

Like reflexology, much of the iridology model has been derived from empirical observation and correlation, says Caradonna. But, unlike reflexology, which lacks clinically validating studies, German M.D.s have compiled an impressive body of clinical data, often derived from autopsies or from tracking individual patients for decades, correlating iris signs with bodily conditions.

In celebration of his eightieth birthday this year, Jensen is attempting to computerize iridology, compiling a master "eye bank," with 500 cases of heart problems, 300 kidney cases, and so forth, all correlated with iris signs. The intention is to help standardize iridological interpretations.

This move toward standardization is much needed because the movement hasn't fully recovered from a series of damaging, if medically biased, scientific studies published in the last decade.

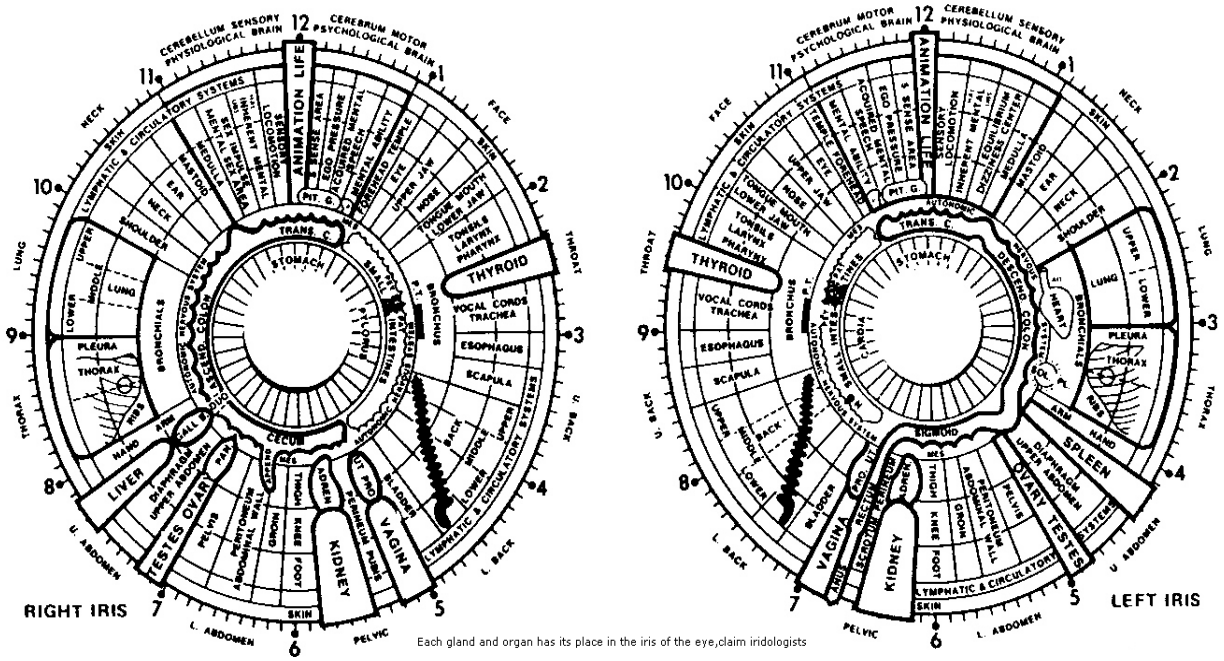
The September 29, 1979, issue of the Journal of the American Medical Association is infamous in iridology circles because of the results it reported in a clinical study with 143 clients with abnormal kidney function. Three iridologists squared off against ophthalmologists. The experiment was to see how well the iridologists could detect kidney problems from iris slides of the patients. They did pretty badly altogether.

"Iridology had no clinical or statistically significant ability to detect the presence of kidney disease," the authors concluded. "Iridology was neither selective nor specific and the likelihood of correct detection was statistically no better than chance. " A later study published in 1984 in the Journal of the American Optometric Association was similarly scathing. This study faulted iridology's model of the homolateral response, the neuro-optic reflex, and other presumed neuroanatomical processes underlying the theory .

However, more favorable results were reported in a 1981 University of Rochester study. "The data suggested a possible ability for iridology to assess specific organ involvement in chronically ill individuals." A recent study, sponsored by the National Heart, Lung, and Blood Institute reported that corneal arcus, an eye abnormality characterized by visible yellow or gray tinted white rings

around the cornea, may be a heart disease indicator. The study tracked 8,825 men and women for eight years, then announced that corneal arcuses are an independent risk factor (with a two to four times higher likelihood) for coronary heart disease in men under age fifty.

Notwithstanding the alternate battering and shoring up from clinical studies, iridology is flourishing. During my own visit to Caradonna's Santa Fe office, I had independent confirmation of what the Montreal palmist Birla had told me. After examining my irises, Caradonna, who knew nothing of my earlier prognosis, commented, "I'm looking at the flowers in the 3 o'clock position. These suggest the gall bladder and pancreas function are inherently weak. There is a digestion and assimilation deficiency and some lympathic congestion around the intestines. "



Each gland and organ has its place in the iris of the eye,claim iridologists

3.8. Micro Acupuncture Holograms

The reflexology systems of foot, hand and ear, the sub-acupuncture systems of hand and ear, and the iris maps in the eye all point toward a holographic model of the human body. Yet within their own fields they remain separate topologies without much commerce with the rest of the body. Could there be a unifying principle, perhaps a body energy-map theory that would tie them all together?

Dr. Ralph Alan Dale, teacher, author, and director of the Acupuncture Education Center in North Miami Beach, Fiorida, believes he has found one, based on persuasive clinical and research data he has collected for two decades. The body functions according to a plan of micro-acupuncture systems, Dale says. In a provocative series of booklets he's published since 1978, Dale has documented eighteen different micro-acupuncture holograms in the human body.

"It is not only the ear but many, and perhaps all, parts of the body that manifest a micro-acupuncture system whose reflexes are holographic reiterations of the gross anatomy," he says. Dale describes micro-acupuncture systems mostly from Japanese, Chinese, and German research, in the ear, foot, hand, abdomen, back, arm, leg, neck, scalp, face, nose, iris, tongue, wrist, temporal-sphenoidal line (cranium), head gravity line (cranium), anatomy impression area (cranium), and two in the teeth-gums.

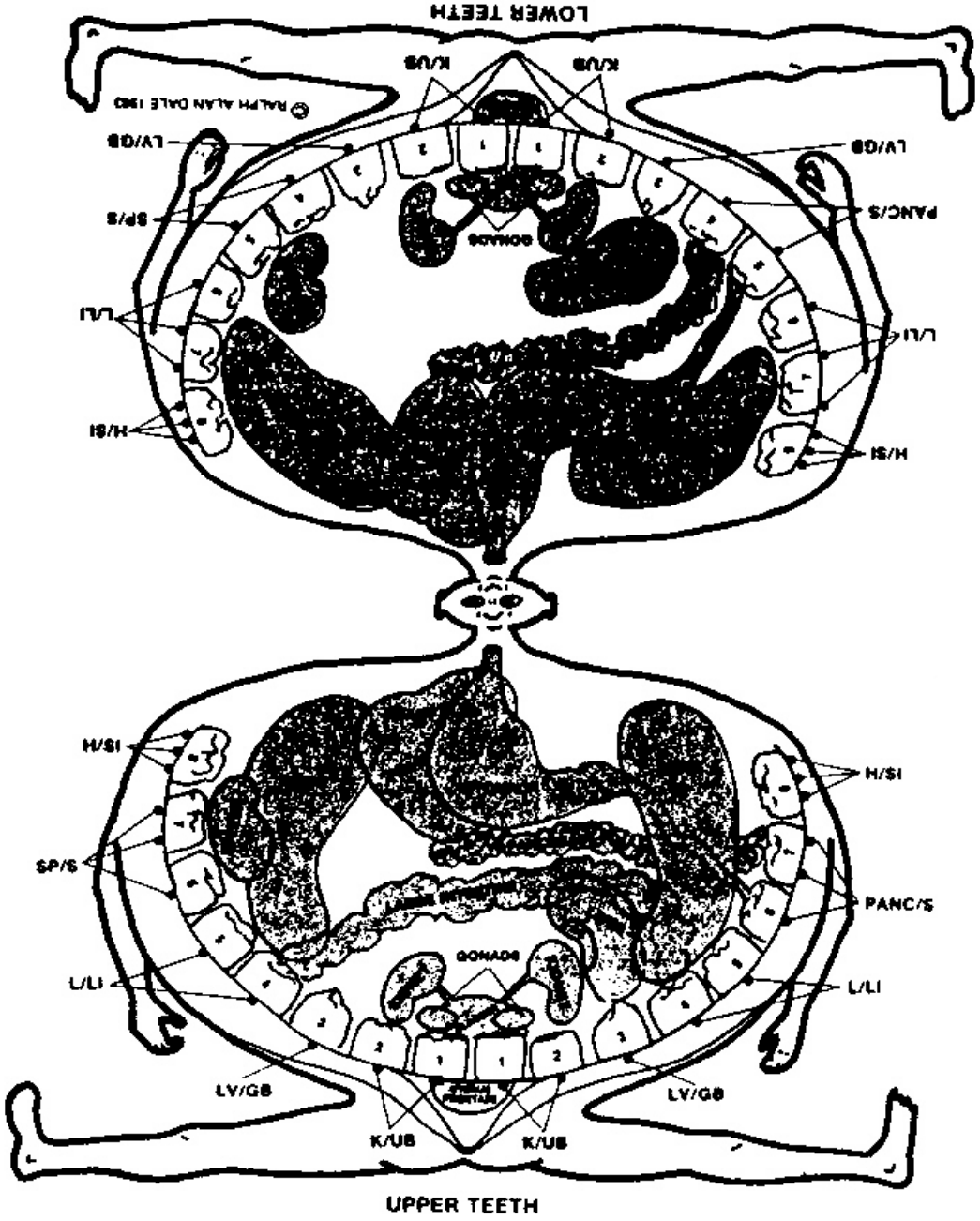
"The overwhelming evidence presented of the reiteration of the anatomy of the body in topological dynamics of these micro-acupuncture systems is a revelation that brings us closer to a theory of micro-acupuncture."

Dale mapped out the organ, systems, and glandular correspondences for each micro-acupuncture locale in the form of a homunculus, following Nogier's example of the inverted ear fetus. What he got was a kind of unified energy field map of the entire human distributed like freckles across the body surface. The superimposition of the holographic human with its meridians and points provokes a stereo, holistic perception by the reader. "The microsystems look like surrealistic ideas that couldn't possibly be true and of course are."

Many of the holographic microsystems Dale describes are unknown in the West yet are adequately documented in clinical studies and are often used in the Orient. Two models for a teeth-gums hologram were proposed in the 1970s by German and American researchers. The lower mandible makes an energetic hologram related to the organs, says Dale, while the upper palate reflects the circadian rhythm which itself depends on the earth's rotation. "Every two hours a different organ and body energy system becomes dominant. Within its own topological boundaries, moreover, each tooth is probably a holographic microsystem in itself. "

Dale began exploring the possibilities for a holographic body model compoundd of multiple micro-acupuncture systems back in 1975 when at the Miami Heart Institute he conducted experiments that linked Fitzgerald's reflex zones of the feet to a complete acupuncture map on the sole, like Yoo's hand acupuncture. Now he contends that the eventual assimilation of the micro-acupuncture holographic model could revolutionize Western medicine. "This will change the whole concept of health care. We will begin to use these microsystems in healing because they are so powerful. These are all interchangeable and can be used in treatment simultaneously, successively, alternately, or in any combination.

Dale's personal hunch is that the kneecap-patella will eventually reveal a micro-acupuncture system. "I firmly believe you cannot investigate any part of the body and not understand its micro-acupuncture system. The next step I hypothesize--and this is consistent with David Bohm's theories--is you can break the microsystem down such that every finger will have a complete micro-acupuncture system, all the way down to the cellular level."



Body hologram researcher Ralph Alan Dale says that there are at least eighteen different micro-acupuncture holograms in the body, including one in the mouth.

3.9. Stems and Branches into the Cosmos

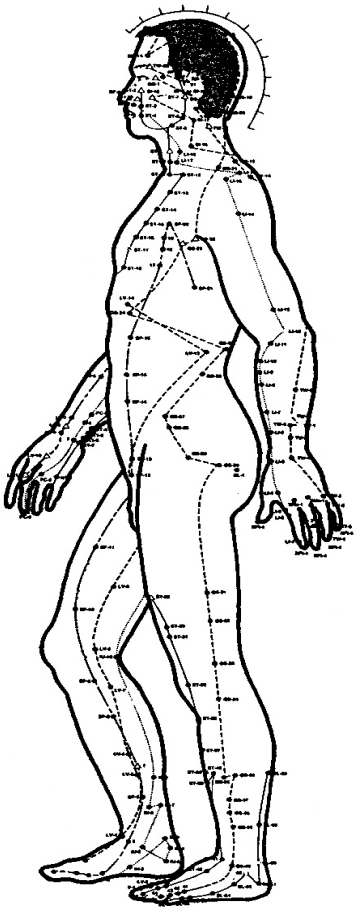
Today the western medical establishment is gradually accepting acupuncture as a viable discipline. Its claims have been empirically and clinically validated and its chi flows have been electrically quantified. Thus. if acupuncture helps to explain, by way of context, the various somatic holograms like iridology and reflexology, then it can potentially validate them as well. But at this point a larger

question looms. If the eighteen micro-acupuncture holograms described by Dale all relate holographically to the whole-body macro-acupuncture system, what is this a hologram of?

The macro-acupuncture system might have deeper, older roots in an antecedent "biological information signal system" which precedes the human nervous organization, suggests Steve Birch. Birch is an acupuncture theorist and research director at the New England School of Acupuncture in Watertown, Mass. Now he's co-authoring Chasing the Dragon 's Tail (Paradigm, 1989) with Dr. Yoshio Manaka, one of Japan's leading acupuncture theorists and director of the Oriental Medical Research Center at Kitazato Research Institute in Tokyo.

"Manaka has realized from his practice and observation where only tiny amounts of stimulation produce profound effects that there must be a signal system operating," says Birch. According to Manaka himself in a recently translated paper, "There is a primitive signal and information system in our body which has embryological roots, but this is masked by the more advanced and complex control systems. Thus the original system is hard to find. This primitive system is able to detect and discriminate internal and external changes and plays a role in regulating the body by transmitting this information. This system serves as the modus operandi of acupuncture."

Manaka's signal system is an interconnected system forming a functional structure that integrates the entire body. "This integrative structure operates under the holographic model, which means that the entire structure is reflected in each and every part.



The acupuncture meridian system: information transfer layout as well

3.10. The Fields of Life

Acupuncture theory thus potentially recognizes that the human energy system, in its micro and macro systems, is part of a larger energy web encompassing planet, solar system, and beyond. While Manaka's primitive signal system might predate and underlay the more developed central nervous system, the interconnected body system of connective tissue might be the physical interface for these holographic connections. This is the contention of Jim Oschman, Ph. D., cell biologist and instructor in the Comprehensive Studies Program of the Rolf Institute and at the New England School of Acupuncture.

"Virtually all somatic therapies have examples of this kind of holographic interaction, where relationship of a part to the whole becomes apparent," says Oschman. "Each approach articulates a possible mechanism by which parts of the whole may be interconnected by various types of energetic fields. The story that may be emerging is the same story Einstein was trying to articulate at the end of his life--namely, the equivalency of energies."

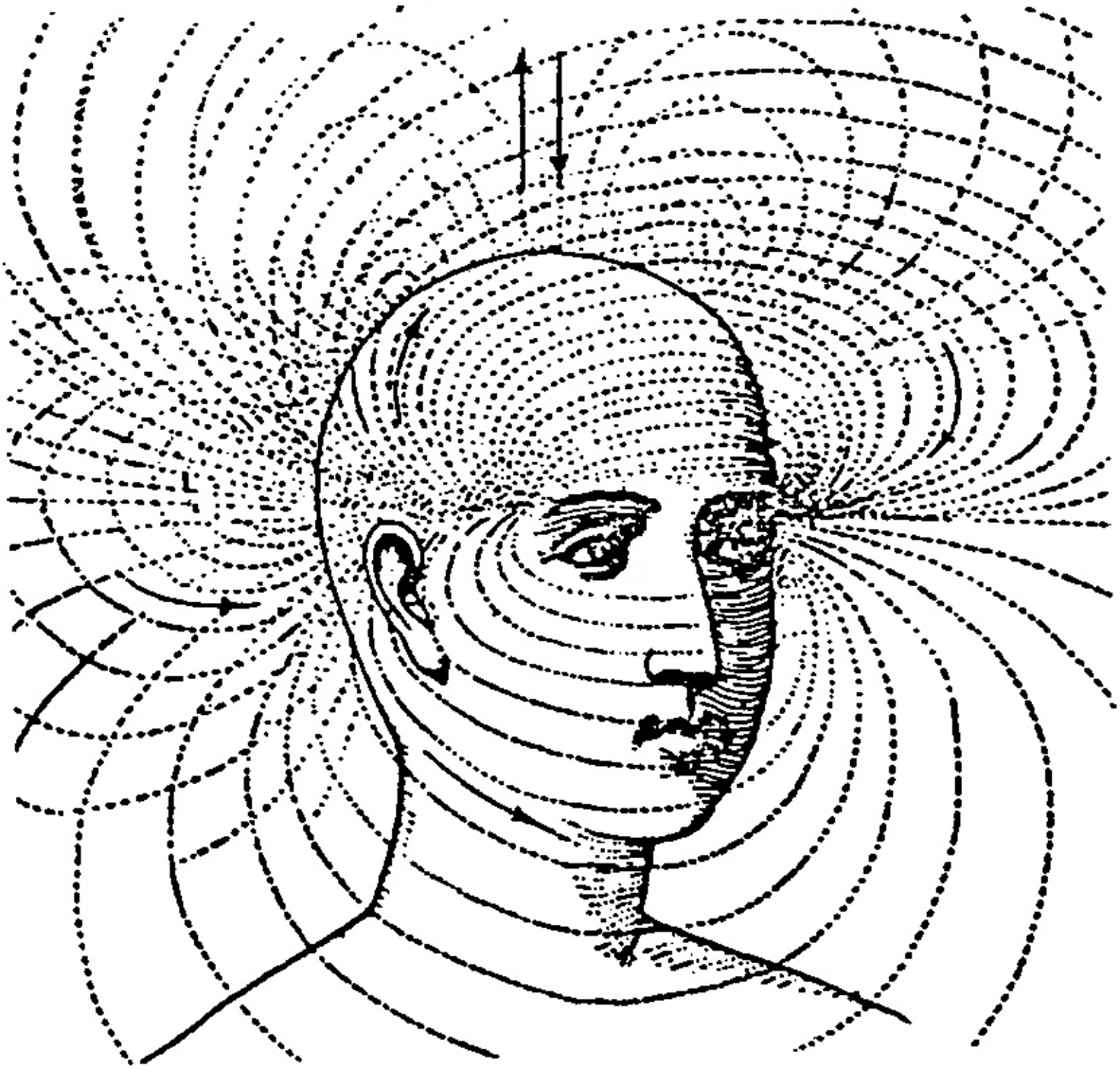
Oschman's thesis is that connective tissue may form "an integrative electronic network allowing all parts of the organism to communicate with each other. The connective tissue is a continuous system extending into every nook and cranny of the body. As a candidate for a holographic fabric of the body, you don't have to look any further."

Connective tissue includes all the tendons, ligaments, fascial planes, all the organs and systems--even the cell through its cytoskeleton is "ensheathed" in connective tissue. It is composed of insoluble collagen fibers, arranged in crystalline arrays, and embedded in a gel-like ground substance. Connective tissue, Oschman emphasizes, is piezoelectric. This means it generates electric fields when compressed or stretched. "It's as if the body were woven as a single fabric of piezoelectric collagen fibers," says Oschman. This facilitates a continuous flow of information and energy through the "interconnected electronic fabric."

Oschman's electronic body fabric is highly sensitive to larger energy fields surrounding the human. These organizing fields of life, Oschman points out, include the earth's electric, magnetic, and gravity fields, each of which in itself encodes information about the larger celestial environment. The implication, Oschman hints, is that through the biological software of connective tissue, micro- and macro-acupuncture systems, the stems and branches, the human body is a hologram of the energetic processes of the cosmos. We could, hypothetically, derive a weather forecast or predict sunspot activity or Mercury retrogrades from reading out, or decoding, the information in our total body hologram.

Common sense provides a simple example of this stunning interconnectedness. "People say their big toe tells them when a storm is coming," comments Oschman. "That occurs because the bone is piezoelectric. A change in pressure can distort the geometry of the bone, especially if it's been injured, which makes it more sensitive."

Oschman's work with Rolfing provides another instance of the holographic model at work. "Ida Rolf said you can tell all about a person by looking at one joint. All of these microsystems give us a clue about the same thing. The body maps give us a grammar to work with. These are realms of synchronicity at play. It may even be that these maps are not as important as our intention to heal because our thinking about a client can be extremely powerful."



"Parts of the whole may be interconnected by various types of energetic fields," claims cell biologist Jim Oschman.

3.11. Searching for the Master Template

At a basic level the etheric body is the primary holographic template for the physical-cellular structure," contends Richard Gerber, M.D. Gerber is a young physician in Detroit whose ...book Vibrational Medicine (Bear & Company, 1988) synthesizes a radical new paradigm for medical practice based on what he calls "Einsteinian medicine" or energy healing systems.

"There has been enough preliminary research to suggest that the body really is holographic in nature. The holographic principle seems to be reflected at different levels of cellular physiology, structure, and function. Every cell in the body contains the information library required to create an entire new human being. Each piece contains the information of the whole body."

The meridian system acts as an information transfer layout as well as a means of bringing in nutrient energy to the body, explains Gerber. "It's the physical-etheric interface, between the etheric body, which is the holographic energy template, and the physical. The two are mutually interdependent and co-stabilized. The etheric template is an informational pattern which precedes cellular structure. Many other higher systems feed into this and funnel down information."

In terms of Western scientific acceptance the concept of the "etheric body or template" today is about as obscure as the acupuncture topology was twenty-five years ago. But scientific models of credibility can change fast, as the wildfire acceptance of magnetic resonance imaging, once thought impossible, in the last five years has indicated. Gerber and his colleagues hope to scientifically demonstrate the etheric body through the development of a three-dimensional etheric body scanner-imager. "This would give us reproducibly visual images of what's happening in the etheric body and meridian system."

3.12. The Palm at the End of the Mind

It all comes back to the palm again. Is it the signature of the master hologram for the holographic body?

As I sat in Ghanshyam Singh Birla's Montreal office, reflecting on my hand prints, holograms, and consciousness, I remembered the poet Wallace Stevens writing gnomically in "Of Mere Being." "The palm at the end of the mind/Beyond the last thought/. . .The palm stands on the edge of space."

The search for the nature and origin of the holographic body has led me out through my palm prints to cellular DNA, micro-acupuncture systems, numerous body maps and somatic topologies, electric fields, etheric templates, and out into the solar system and greater cosmos. The palm seems to represent a swinging doorway between holograms--and the Mind is the doorman.

In whatever vocabulary we employ, it is clear that the micro-acupuncture body holograms we've considered exemplify the cardinal features of the holographic paradigm.

Information is distributed throughout the system, from the micro cellular to macro-biological domains. Homunculi flourish like spring dandelions throughout the body. The information is encoded in wave interference patterns in the form of reflex zones, iris topologies, palm prints, and auricular meridians, requiring precise ("mathematical," Pribram would say) reading and decoding into meaningful images of the whole. Any piece of the integrated electronic fabric will regenerate the original image, which means that the nose map and scalp map and foot map will equally project back the original composite human image. Overlapping, multilayered body maps are not at all contradictory or mutually exclusive but represent the holographic versatility to store immense amounts of information in nearly the same space. That's why the palm contains the equally valid maps of hand acupuncture, reflexology, and palmistry. And because the holograms encode information from the implicate order, which is free of time and space and linear considerations, readouts can encompass information from the deep past, or unconscious, the present, and the predictive-probable future.

The final implication, yet to be conceptualized, is that the human body, composed of a myriad of smaller holographic projections, is itself an encoded frequency pattern, a cosmic hologram awaiting our illumination.

The holographic paradigm provides palmistry's more esoteric and controversial claims a context for validation. According to Samudrik Shastra, the accumulated karmic tendencies of thousands of lifetimes are encoded in the inactive hand. As I looked at my left hand I realized with a sudden mental lurch that if I accepted this hypothesis, the significance of my palms held now before me would be suddenly transformed.

Before me, as it would be for anyone else engaged in this simple contemplation, would be the holoprint, as we might call it, of a 10,000-lifetime-old human being. Here we would have the master hologram, a multidimensional gestalt, a "paradigm of Buddha consciousness" requiring only the mathematical-intuitive decoding to regenerate the original implicate image. I left Montreal wondering, if we could ever do this perceptual transformation, what would it be?

3.13. How The Body Programs The Brain

On a sunny weekend in mid-May, twenty Feldenkrais practitioners gathered at Cooper Hill Inn in East Dover, Vermont, with famed neuropsychologist Karl Pribram, Ph.D., of Stanford University. The meeting's purpose was to spark a dialogue between the neurophysiologists and the intuitive healers and to forge a new vocabulary that would bridge both worlds.

The Feldenkrais people, who had traveled to Vermont from all over the country, had Pribram virtually to themselves for four days. From the first night the meeting was a stimulating, heady exchange of neurophysiological models for "the wetware of the brain" with exciting case studies from Feldenkrais work.

Pribram, now seventy, was informal, a polished raconteur with a soft chuckly voice. Looking decidedly avuncular with his long white hair and beard, reading glasses on a leash, plaid shirt, jeans, and sneakers, he shared numerous stories of famous colleagues and pivotal moments in the history of twentieth century science. Pribram's informal countenance at Cooper Hill, however, could have been misleading to the casual outsider. For decades, at Stanford, Pribram has wielded considerable research and clinical power, administering million dollar annual research budgets and pioneering new discoveries in neurophysiology. Somehow, and this is a testament to his subtlety as an academic politician, Pribram has also more or less safely championed radical views of the brain.

"My current perceptual model is something I call quantum neurodynamics," Pribram explains.

In what he calls "the synaptic frequency processing zone," Pribram suggests that the efficacy of Feldenkrais work, and other body therapies, can be validated.

"The brain cortex with regard to motor function works by something like setting a thermostat. You have a set point which is memory, either experiential or genetic." The motor function proceeds according to an "image of achievement." This is a neuronal image of the desired movement. There are no motor programs as such in the cortex, says Pribram, only images.

"The image of achievement is what the nervous system has to image. Then it leaves it to the rest of the motor system to effect. It doesn't tell, it allows. The word 'allows' in neurophysiology is called inhibition. Inhibition is the allowing of the behavior."

The essence of Feldenkrais work is to transmit a new image of achievement from practitioner to client.

Moshe Feldenkrais himself appreciated Pribram's neurophysiological models. In 1978 Pribram jointly appeared with Feldenkrais at a major training program and in September 1987, a few years after Feldenkrais's death at seventy-nine, Pribram gave the keynote lecture at the Feldenkrais Guild national conference in Seattle. The repercussions of his speech are still moving through the community.

"We got to be fairly good friends," says Pribram, who is president of the Feldenkrais Foundation, which looks after Moshe's intellectual estate. "Then suddenly, when he died, everybody started calling me up saying, you're the only person who can keep us all together. "

Feldenkrais's "miracle" is teaching the body how to reprogram the brain, and the thrust of his work was the inter relationship of human movement, behavior, and learning.

"You see, I contend that all successful analysis is accompanied, and probably preceded, by a change in posture and -muscular habits of the body and face, "Feldenkrais said. Human learning thus is a process of wiring in the nervous system, which means all faulty learning can be rewired. Feldenkrais disclaimed the titles of healer or therapist, preferring that of educator, or perhaps electrician.

"He's not just pushing muscles around," Pribram said of Feldenkrais several years ago. "He's changing things in the brain itself so that the patient can gradually adjust his whole muscular dysfunction to what we call a normal image. In the motor cortex there's a photographic-image-I call an image of achievement. It's that image Feldenkrais transmits. He knows how it ought to be. He transmits that image and you organize your brain to meet it."

Today Pribram adds to that assessment by noting, "Moshe thought the way we improve bodily functions is by imaging the healthy functions, then letting the body come up to that image."

For Ralph Strauch, Ph.D., Feldenkrais practitioner in Los Angeles and author of Reality Illusion (Quest, 1983), Pribram's neurological model "informs the internal model of human functioning I intuitively work from. The idea that you can access what's going on in the mind-body system from any part of the body is part of the Feldenkrais work".

Feldenkrais practitioner Bonnie Rich Hummiston, R.N., notes, "It's a way of showing how the hologram works. When I do something with your feet, suddenly your breathing changes, and how you hold your arms, neck, and head also changes. Pribram gives me a better understanding of what I'm doing in relation to the brain's sensitivity from touching on the skin. It shows me this work really does affect the brain and nervous system."

My final question to Pribram during our interview on the spacious front lawn of Cooper Hill was: What happens, in his neurophysiological vocabulary, when the healing touch is made.

"You're changing the holoscape. You're changing the weights on the synapses. You're changing the amount of direction of polarization at the particular synapse. The change doesn't happen in only a single neuron or synapse, either. It's a distributed system. That's the essence of the implicate order. It's all over the place. It spreads the new information all around the brain."

4. THE WAY OF THE FLESH: A BRIEF HISTORY OF THE SOMATICS MOVEMENT

Johnson, D. H. , (1994) Noetic Sciences Review, #29, Spring 26-30

4.1. Introduction

Last year there were two successful television specials on the relationship between mind and healing-- "The Heart of Healing", produced by IONS and Independent Communication Associates for TBS, and "Healing and the Mind with Bill Moyers". Since then some people have communicated to us that a significant area of therapy, known generically as "Somatics", bad been overlooked. Somatics, as defined by one of its pioneers, Thomas Hanna, is a field which studies the soma "the body as perceived from within by first-person perception ". Hanna distinguished this from disciplines which study the human body from the outside--as an objective "third-person" phenomenon.

One of the people who drew our attention to this oversight was Don Hanlon Johnson, Director of the Graduate Somatics Program at the California Institute of Integral Studies. He pointed out that the current explosion of interest in mind-body integration, and in "alternative" or "complementary" medicine, has conspicuously omitted the therapeutic efficacy of a broad range of Somatics practices. In this article, Johnson emphasizes that many of these "schools-such as Sensory Awareness, Rolfing, Eutony, Trager Work, Hakomi, Feldenkrais, and the Alexander Technique have been around for more than a century, and serve a large population in North and South America, Europe and Australia.

For more than 100 years, a number of independent groups have been exploring and teaching a view of the human body and its relation to physical, mental and spiritual health that differs radically from conventional notions. These schools of thought and practice--which collectively may be called the "Somatics Movement"-- reject the separation of spirit from a mechanistic human body, a view common to both mainstream biomedicine and orthodox religion.

The pioneers of Somatics introduced to the West an alternative vision of health and the body which emphasizes an intimate integrity of movement, anatomical structure, intelligence and spiritual consciousness. These teachers encouraged respect for lived *experience* and the wisdom that can be found through "attending to" rather than "conquering" or "controlling" life processes.

A growing interest in Somatics throughout the world may be attributed to the scope of its therapeutic applications. Claims for efficacy include, for example, *relieving chronic physical symptoms*: back pain, whiplash injuries, various forms of arthritis, scoliosis, the restrictions of cerebral palsy; *easing emotional or psychological complaints*: depression, sexual dysfunctions, body-image problems, substance addictions, relationship problems; *improving focused awareness* and stillness required for the practice of meditation; *increasing flexibility and vitality*.

Because it can be applied to a wide range of conditions, Somatics is sometimes confused with other practices such as behavioral medicine, conventional physical therapy, chiropractic and massage. These other systems exhibit a different attitude and approach to health, however. Behavioral medicine, for example, employs a terminology which includes ideas such as *controlling* the disease processes of the body by visualizations, affirmation, biofeedback devices, and changes in attitude and other states of mind. Such an approach differs greatly from the context typical of Somatics practitioners in which people are encouraged to "*listen*" to the messages of their flesh; to "*embrace*"

their breathing patterns to 'follow" their styles of moving and to pay attention to the insights which emerge within the movement itself.

4.2. Origins Of Somatics

Often associated with the "New Age" and with the flourishing of body-oriented disciplines in the 1960s at places like the Esalen Institute in California, Somatics has, in fact, a much longer history. The field dates back to the mid- and late nineteenth century Gymnastik movement in Northern Europe and the Eastern United States. At a time when physicians were still engaged in the crudest uses of surgery and medication, and when psychotherapy was just beginning, the practitioners of various branches of Gymnastik were already doing sophisticated healing work using expressive movement, sensory awareness, sound, music and touch.

The task of uncovering the early history of Somatics is similar to that confronting feminist historians: We depend on oral history, fragments mentioned by the way in exercise books, a passing reference to a teacher, or a footnote in a history of dance. [1] I However, we do know that early pioneers of this movement included, for example, Francois Delsarte, Genevieve Stebbins, Bess Mensendieck, Leo Kofler, and Emile Jacques-Dalcroze. These people shared a new vision of embodiment which differed from the dominant models in biomedicine, physical education, religion and classical ballet. For example, instead of training dancers and athletes to shape their bodies to fit a normative classical form, they encouraged individual expressiveness and a return to a more natural body, allowing forms of movement to emerge from within rather than imposing them--what Somatics practitioners refer to as inhabiting" the body.

In the late 1800s, F. M. Alexander in Melbourne, Australia, and Leo Kofler in New York were coincidentally afflicted by chronic laryngitis for which physicians could find no cause or cure. Both men conducted independent healing investigations and discovered that as they learned to fully inhabit their body movements, posture, and voice, they were healed. Similar stories are told of Moshe Feldenkrais, Ida Rolf, Gerda Alexander, Ilsa Middendorf and many others who discovered healing capacities inherent in heightened bodily experience, unmediated by images or positive thoughts--nor by biofeedback and video display terminals.

Some 20 years later, around the turn of the century, another paradigm-breaking event occurred in Berlin. Elsa Gindler fell ill with tuberculosis and was told by her doctors that she would never regain the use of one lobe of her lungs. She spent several months devoting herself for hours daily to learning how to inhabit her breathing, and eventually she regained full use of the collapsed lung. In the course of that process, she realized the extent of the healing capacities released by quiet, sustained sensing of bodily activities--without trying to control them with images, affirmations or programmed strategies. Gindler went on to found a school now known in the United States through the work of Charlotte Selver as "Sensory Awareness".

From the beginning, the various branches of Somatics shared an emphasis on the systematic refinement of nonverbal skills, particularly sophisticated methods of touch, breathing, and body-movement instruction. While psychosomatic and behavioral medicine developed out of the marriage between biomedicine and psychoanalysis, from the top down as it were, Somatics developed from the "bottom up", from a wide range of experimental methods of manipulation, movement, and awareness, outside universities and clinics. These unconventional methods were typically developed in response to critical health problems that were unresponsive to existing medical and psychological treatments.

Because the innovators of Somatics lived within a comparatively silent world of non-verbal practices, few texts have articulated the early work; only participants in the methods had access to what was being discovered. Much of the early knowledge, therefore, has been lost. The catastrophes of both World Wars and subsequent diasporas contributed significantly to this loss. World War I broke up the early interdisciplinary Somatics community, leaving individual schools intact but isolated and fragmented. World War II further dispersed the pioneers, forcing many to put aside the more visionary aspects of their work, and to eke out a living as refugees, marketing their work under the more acceptable forms of physical rehabilitation or psychotherapy.

4.3. Growth of The Movement

In the 1960s, the Esalen Institute and a growing counter-culture exploring different states of consciousness provided an opportunity for a revival of the Somatics vision. Some of the old pioneers traveled westward from Tel Aviv, London, Berlin, and New York, gathered together large numbers of students, returned to the eastern seaboard, established new schools, and eventually brought their work back to Europe.

By the end of the 1980s, international conferences on Somatics had been held in Paris, Zurich, Naples, Montevideo, Montreal, Strasbourg, San Francisco, and New York. Today, at least three international professional organizations use a version of the name "Somatics", and the Association for Humanistic Psychology has recently formed a Somatics wing. In California, the Coalition on Somatic Practices is a professional group lobbying for state licensing; masters degree-level programs in Somatics and at least one doctoral program--at Ohio State University--are currently offered in the United States.

Pilot studies and a large body of anecdotal evidence attest to the efficacy of various Somatics methods. The medical establishment often disputes therapeutic claims for Somatics. On closer inspection, however, one finds that the major private institutes--designed by their founders to monitor the quality of practitioner education and to further the development of their work through case studies and research--have initiated a number of studies of different methods. For instance, the Rolf Institute, created by Ida Rolf, has from its inception encouraged investigation of its work by biomedical researchers. With little outside funding, it has managed to complete a number of empirical studies. The Feldenkrais and F. M. Alexander Teachers Guilds, created to develop the work of their founders, have also sponsored several pilot studies. [2] (Selected Readings)

4.4. A Shared Vision

Despite differences in method and style among the thousands of today's Somatics practitioners, they share a vision of reality more akin to older, indigenous ideas than to modernist European scientific models. That vision includes an awareness of the significance of natural forms and processes, and of the human spirit's interaction with its environment. Although bioenergeticists, Rolfers, and Feldenkrais practitioners may differ about the effectiveness of procedures, they all share the assumption that sensing, feeling, breathing, moving, postural changes, and excitation are crucial factors in the human search for meaning. Whether a client is being probed by a Rolfer's elbow, vibrating under a Reichean's palm, or trying to concentrate on the sensual effects of the disorienting Feldenkrais movements, he or she is constantly reminded that the realities categorized under "body" or mind" are *experiential*: aching muscles and frayed nerves at one extreme, love and cosmic intuition at the other. Healing takes place in creative interweaving of these extremes. The holistic view of the person, particularly emphasized in Somatics, is based on an assumption that various regions and parts of the body are systemically related. For example, bursitis in the shoulder joint or

disorders in the lumbar region may be related to torsions on the ankles and knees; chronic back pain may be related to restricted breathing; carpal tunnel syndrome may be related to muscular tensions in the pelvis. In Somatics trainings, no matter what the school, practitioners are taught to see these relationships among body parts and layers within any body regions, and to develop their interventions accordingly.

4.5. Meaning In the Flesh

Somatics methods differ also from many non-conventional psychotherapeutic approaches, such as some forms of hypnosis, meditation and guided imagery, by emphasizing bodily awareness, anatomy, sensory and kinesthetic education, as well as non-verbal language as the foundation for therapeutic insights, emotional clarity and spiritual growth. Frequently, the language of other alternative healing practices reveals a belief that "meaning" or "healing" thoughts" come from somewhere other than the depths of the flesh, movement .and experience.

It may be easier both for physicians and for the public. brought up within the dominant medical paradigm, to accept hypnosis, imaging, relaxation techniques, biofeedback, and exotic or foreign healing methods. These modalities, it is generally assumed, do not require a radical--and sometimes uncomfortable--attitude-shift toward the body. Yet it is precisely this radical shift in viewpoint, acknowledging the body as a repository of wisdom and meaning, which constitutes the heart of the various Somatics methods.

Don Hanlon Johnson is Director of the Somatics Graduate Program at the California Institute of Integral Studies, and an author, whose most recent book is Body, Spirit and Democracy (North Atlantic Books, 1993)

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4.8. Reading The Body As Text: A Feldenkrais Case Study

Nora was a well-educated woman in her sixties living in a small town in Switzerland. One morning she found it difficult to get out of bed. Her body was stiff and her speech slow and slurred. Her local physician diagnosed a clot or hemorrhage. A few days later, feeling a little better, Nora tried to read the morning paper but found everything blurring. She realized she could neither read nor write. A neurological clinic in Zurich established that some injury had occurred to the left side of her brain.

After a year at the clinic her speech had improved, but not her reading or writing. She could no longer write her own name, nor read it written or printed

When Moshe Feldenkrais came to Zurich to give a class on his therapeutic method, Nora went to him for help. Feldenkrais' way of working with her was profoundly simple. He spent an early session simply lifting and moving Nora's head very gently with her lying on her back. He reports:

> Examining Nora's head, and gradually reducing the intensity of my touch and of movements for finer appreciation, had an effect on the muscles of her neck, and her head became easier and smoother to move..... As I examined her legs, arms, body and chest for the quality of the movement--not just how much but first of all how easily they could be moved--she relaxed further. I pushed the sole of one foot and watched carefully to determine whether I could make her legs push the pelvis and, through the spine, affect her head.
>
> ....After I examined the cardinal movements of her body for about three-quarters of an hour, Nora became quite cheerfully and looked much brighter. Her sister and other relatives in the room observed that the expression of her face and eyes and her facial mobilitychanged almost to normal. [3] [When Feldenkrais uses words like "push' he is speaking of the most sensitive and evocative movements, a result of long training in refined use of the hands, not gross prodding. It is such a profoundly healing experience to be so fully met with this kind of touch which is radically different from the feeling of being manipulated or 'fixed" from outside.]

During several sessions over the next year, Feldenkrais followed this radically simple way of working with Nora, moving from an initial general exploration of large regions of her body to the small movements involved in her experiences of dysfunction--reaching for a door handle, trying to write, tying shoe laces, sitting down in a chair, putting on her eyeglasses. In each case, he followed the same procedure: taking on the beginner's mind, feeling his way into what it was like for her to do these movements, and gently responding with his hands on her as she attempted them, or by suggesting movement experiments for her to do.

When finally he began working with her loss of ability to read, he asked her to do an eye-focusing experiment that involved placing a straw between her teeth, holding it with the tips of thumb and forefinger, and doing various exercises. At one point, he asked her to look at the end of the straw adjusted in length to normal reading distance and placed on a word in a text before her, and asked her *to say whatever word crossed her mind (*notice that he did not ask her what she was seeing).

> When she saw the word at the end of the straw for the first time her lips opened and she dropped the straw from her mouth. Her first movement was to catch the straw and not to speak the word she saw. I knew that she saw the word and would have uttered it were her mouth free. Then the word was gone. In a flash I knew that she saw the word but did not read it; I remembered that she had never said 'I cannot read, ' but always 'I cannot see. ' Not seeing the difference, I had concentrated on her reading problem while her real problem was, first, .seeing, and only later reading The transformation into words of the letters she saw was the difficulty, not uttering the words or seeing the letters.

> Soon enough she was able to say the word at the end of the straw, and after making about twenty trials, I showed her that all her guesses were correct. [4]

The core of Feldenkrais' work, and of other Somatics methods, is to enter an inquiry into who the person is and how he or she is *embodied*: What kinds of responses lie within the patients' joints? How far can they move when touched with empathy? What are their rhythms of moving through the room, sitting down, standing up? How does the ebb and flow of breath change in response to various stimuli, including gentle touch?

The body as text: It involves entering into a form of body-focused awareness and education as different from ordinary sensation and attention as reading Shakespeare instead of Classic Comics. One moves from the superficial judgments we make each day about our and others' embodied personalities to realizing the rich and endless layers of meanings in another's gait, gasping for breath, flushed face--meanings that cannot be captured by thin rational diagnostic concepts

After a lifetime of not being really seen or felt, as is the case with many of us, the encounter with a practitioner that is able to meet another person at this preverbal, preconceptual level is itself healing. To be grasped in that way is to be healed. D.H.J.

5. MOVEMENT IS MEDICINE

Cabrielle Roth, New Realities, Jan/Feb 1990, pp. 18-24, 54-55

5.1. Introduction

Gabrielle Roth is a shamanic teacher, healer, and dancer who has served as a consultant to various institutions. She currently teaches experimental theater in New York. Excerpted from Maps to Ecstasy by Gabrielle Roth. New World Library, San Rafael, CA
For more information about the work of Gabrielle Roth, her music tapes, and teaching schedule, write to: The Moving Center, Dept. ND, P.O. Box 271, Cooper Station, New York, NY. 10276

Your body is the ground metaphor of your life, the expression of your existence. It is your Bible, your encyclopedia, your life story. Everything that happens to you is stored and reflected in your body. Your body knows; your body tells. The relationship of your self to your body is indivisible, inescapable, unavoidable. In the marriage of flesh and spirit, divorce is impossible, but that doesn't mean that the marriage is necessarily happy or successful.

So the body is where the dancing path to wholeness must begin. Only when you truly inhabit your body can you begin the healing journey. So many of us are not in our bodies, really at home and vibrantly present there. Nor are we in touch with the basic rhythms that constitute our bodily life. We live outside ourselves -- in our heads, our memories, our longings -- absentee landlords of our own estate. A brochure I saw at a chiropractor's office says: "If you wear out your body, where are you going to live?"

One incident in my search always sticks out for me: I ran into a rabbi in a shopping mall. We got to talking and I asked, "Do Jews hate their bodies as much as Catholics?" He started to laugh in mock shock, but then gave me a more quizzical look. It seemed I'd hit on something dose to him. He told me that he'd just buried his father, who was also a rabbi. He'd asked his father on his deathbed, "What was the most important thing in your life? The Torah?" And the old man had answered, "My body."

"I was stunned," his son now told me. He stared past me in awkward silence and finally said, "I always thought my body was just a vehicle for my mind; feed it, clothe it, send it to Harvard."

Being -- existence, energy, vitality -- means that our spirit fills our body. Our full self is embodied. But when we look in the mirror, what do we see? A dull, vacant stare? A sunken chest? A phony smile? Go take a look. What do you see? If it isn't a vibrant self brimming with energy and presence, then you're shortchanging yourself on the gift of life. I know. I've been there. I've seen thousands of absentee selves, and you have too -- on the subway, in rush-hour traffic, in the supermarket, profiled in the eerie evening glow of the tube -- and you know, all too often, you're one of them.

For many of us, the body is a feared enemy whose instincts, impulses, hungers are to be conquered, tamed, trained for service, beaten into submission.

Ironically, that's what I did as a "dancer" -- I learned to ignore, deny, control, misuse, and abuse my body. I could make it do fancy steps, rev it up with one drug and knock it out with another, starve it and adorn it, but I didn't trust my body, I didn't like it. No wonder I didn't live in my body, or seldom let my breath move below my neck. Mine became a body disconnected from the waves, the rhythms, the cycles that comprise the ocean of my being. I could dance, but I'd forgotten how to really move or be moved.

My way back into life was ecstatic dance. I reentered my body by learning to move my self, to dance my own dance from the inside out, not the outside in. And over the years, I discovered -- in observing my own body and thousands of others -- the five sacred rhythms that are the essence of the body in motion, the body alive:

Flowing . . .Staccato. . . Chaos. . . Lyric. . . Stillness.

5.2. The Five Sacred Rhythms

The rhythm is below me
The rhythm of the heat
The rhythm is around me
The rhythm has control
The rhythm is inside me
The rhythm has my soul.
Peter Gabriel

Picture a lone dancer -- yourself -- on a bare dark stage against a white backdrop. You are standing perfectly still, quiet as night. You feel your breath rising and sinking, expanding and contracting. You let your head drop forward, feel its weight, let it roll around your shoulders, move up and down, from side to side. Heavy, slow movements that slide into your shoulders. Then your elbows. Slow, heavy movements carving shapes in space. Then your hands take over and do their own dance. Your hips catch the spreading fever, rock and roll, twist and turn around and around. Your knees bend and lift, describing small and large arcs. And finally your feet slide, stamp, tap -- experimenting with a dozen ways of walking. All the parts of your instrument are tuned. Your body is primed for the five sacred rhythms.

The lights come up like dawn. Your body is still again. You feel the rise and fall of your breath, the expansion and contraction of your rib cage. You go with this *flowing* rhythm, enhance it,

exaggerate: inhaling, rising, expanding, opening; then exhaling, sinking, contracting, closing. You ride this wave of movement again and again until you're stretching like a waking eat. Slowly, the music of a lonely sax catches you in its sweet parabolas of sound, and you become a continuum of movement, creating an infinity of shapes as you move up and down, rising and sinking like a heavy sun. Breathing deeply in and out, there are no sharp edges to your movements, only curves, endless circles of motion, each gesture evolving into the next. Your body has become a sea of waves--powerful, constant, rhythmic motion rooted in the earth, relaxed and centered, *flowing* in all directions.

Then the drums come in, and the other horns, bursting the half-waking dream with pulsating energy. It's as if you're caught in a sudden storm, waves pounding, your body being carried by the tempo. You begin to move in sharp, *staccato*, defined ways, each movement having a beginning and end. You fuse with the beat of the drums, and your arms and legs become percussive instruments, beating the floor and the space around. You're staccato incarnate, torso twisting sharply, arms flashing, feet pounding, one with your pulse, living on air, exhaling into one movement, and breathing life in with the next. Your body's jerking, jabbing, jamming, falling into patterns, and repeating them over and over till they die, and some new pattern is born -- like the music of Philip Glass. You're doing body jazz.

Now the beat builds, the pace quickens. You're going over the edge into *chaos*. You lose control. You get drowned by the beat. The lights are flashing, the stage spinning. You're swept up in some primal rite, falling deeper and deeper into yourself, a waking trance. The Kodo Heart Beat Drummers are blasting through the speakers. Your body's gyrating, limp as a drunk ragdoll, spine undulating, head loose, hands flying, feet locked in the beat. You're electric, turned on, plugged into some huge transformer. You're flashdancing your heart out, brain in neutral, vibrantly alive, and totally *chaotic*.

But just when you think you're going to burst, or collapse, you land like a feather on the light side of yourself in *lyrical* rhythm. The lights melt into a pastel glow, violins swell into a sweet tune, and your body sweeps into graceful loops as winning as a waltz. This *lyric* mood is delicious as fresh fruit, lulling as a summer breeze, playful as an otter. Breezy, light on your feet, you swirl Isadora-like more and more slowly till stillness comes.

You drop to the floor, feel your breath rising and falling, expanding and contracting. *Stillness* is full of being. Being alive. You feel radiant, transformed, ecstatic. Your body's *still*, but inside everything's alive with movement.

Catch the rhythms? Recognize them? I'm sure you do. Just think of the best lovemaking you ever experienced. Strong and *flowing*, gentle and slow, lingering and tender in its foreplay; pulsing and full of energy, pounding *staccato* passion and captivating tension as the sexual fever builds; wild, *chaotic*, out of control, beyond all thinking and fears with the onset of orgasm; sweet basking in the loving, *lyrical* security of perfect arms and the luscious afterglow of the best it ever gets; and finally, *stillness*, tranquil as dusk light when everything becomes clear and gorgeous in the silhouetting of sunset.

Or recognize the rhythms in the birth of a child. Labor begins with gentle, undulating movement in the womb; builds into strong, stabbing contractions; crescendos with impossible, body-engulfing pains and the final bursts of pressure that whoosh the baby out and send joy racing through every cell, culminating in the ecstatic stillness of embracing your nursing infant.

Over the years I've found that these rhythms -- flowing, staccato, chaos, lyric, stillness -- constitute the fluid structure, the DNA, of our physical lives. We know from physics that everything is in motion and that the authentic way of understanding reality is to think in terms of motion: rhythms, vibrations, frequencies -- the language of constant change, of flux.

So our challenge is to become conscious of these rhythms, to truly experience them, to enter into them. We have to learn to know what rhythm we're in, how to ride with it, how to shift; to sense what rhythm others are in, and how the different rhythms are complementary or discordant. We need to discover what rhythm predominates in us -- are we a flowing type, a chaotic type? What rhythms characterize the main people in our lives? We need to tune into the undulating rhythms of our days, our weeks, our months, our years.

5.3. Doing the Rhythms

So how do we get in touch with the rhythms that are our body's native language? The simplest answer is to "do the rhythms," to act them out, enter into them. And the simplest, most natural way to do them is to *dance* them. There are no rules or fixed instructions, because ultimately your own body, your own energy, is your teacher.

Dance is the most immediate way of expressing the body's essential rhythms; dance is spontaneous, universal -- watch how children respond to music, and remember that every human culture has its dance forms, embodying the varying rhythms. In my workshops, I provide appropriate music for each rhythm and invite participants to discover their own expression of them: the flowing, contour-following rhythm that may look like Tai Ji or moving through honey -- slow, mellifluous, elegant; the sharp, defined, syncopated karate-like moves of staccato; the wild tribal, out-of-your-head, carnival blowout that is chaos; the light, airy, dancing-on-air of the Iyric phase; and the mime-like dialectic between movement and stasis that is dynamic stillness. The spontaneous choreography by people who have never been formally trained in dance constantly astonishes me: it's as fresh, bold, and inventive as most work I've seen done by dance troupes.

Anyone can do the rhythms. They are in us and are part of our essential makeup; they just need to be evoked, to find expression in our own unique beings. I've worked with everybody -- rock stars and priests, kids and old people, schizophrenics and up-tight intellectuals -- and they all discover the dancer within, as the procession through the rhythms liberates their limbs, and they rediscover their body. I've "taught" thousands, and there's never been one who couldn't master the rhythms.

Even my friend Stanley. In 1975,I did a lecture/demonstration at the big Unitarian church in San Francisco. Afterward, a sixty-five-year-old man, who had been in an industrial explosion that had left him half deaf and severely palsied, came up to me very excitedly and told me in slurred speech how thrilled he was about the dance. So I invited him to come to the next workshop I was giving. He came, and he's been working with me ever since. In the course of the last twelve years, by regularly doing the rhythms, he's been able to move beyond his palsied, spastic condition and to open and expand his movements and his speech.

Stanley has been like a withered flower coming back into bloom. When I first met him, his arms were contracted tight against his chest, his hands were tightfisted like gnarled clubs, and his body was shaking in a perpetual state of chaos. In doing the rhythms. Stanley entered into this chaotic state and from there, found his way into the other rhythms -- first staccato, then flowing, then lyrical, and finally achieving a kind of stillness -- gradually reintroducing his body to its other ways of being. Doing the rhythms relaxed him tremendously and opened him up to the whole repertoire

of human movement. His progress, needless to say, has made all the difference in the quality of his life and has been a joyful discovery for me. Stanley has become a grandfather spirit of my work. He now wears dance clothes and funny little hats, and he's not only picked up the spirit of dance but developed his own distinctive style. Going strong at eighty, he's discovered the dance of life and is a constant joy and inspiration.

People are surprised to discover that the rhythms are not only healing but also energizing and relaxing. In exploring the full range of our body's natural movement, we reconnect with our native animal energy and start to be present in our bodies.

In my workshops I use live or taped music appropriate to each rhythm and briefly demonstrate how each rhythm looks and feels, how it can be embodied. Sometimes I don't use music at all and instead encourage people to follow their own inner sense of rhythm. I don't teach steps -- your body has its own steps, its moves, its own ways of being in each rhythm; you discover your dance by doing it.

It's ideal to set aside the same time every day, five days a week, and devote that time to doing the rhythms. Find a time structure that works for you--morning, afternoon, or evening. The ritual of your movement work is up to you. If you don't want to do the rhythms every day, do them when the spirit moves you. You can do the rhythms alone or with others. For some, it's a daily meditation. For others, it's exercise. For me, it's both.

You'll want to wear light, loose-fitting clothing and light shoes you can dance in, or you can dance in just bare feet. Put on some smooth, undulating music of any kind. It's the *flowing* rhythm that's important. not whether it's rock or classical or ethnic. Tune into the music; let it penetrate you. Feel its pulse, its contours, its waves. Music is an ally, an inspiration, a lure: it spontaneously evokes our inner rhythms and induces our body into movement. Gradually begin moving with the flowing rhythm of the music. Stretching, undulating, feeling the weight of each movement in space, you're inventing your own Tai Ji. You feel your feet firmly on the floor and the circular movements of your legs, your arms, and your hands describe an evolving continuum. You're centered in your belly, and all the movement begins and returns there: rising on the inhale, exaggerated and prolonged, and sinking and contracting on the exhale through the mouth. Just flow with the music as the spirit moves. There's no right way to do it, only your way. And gradually your own style, your unique way of being, will emerge, and the movements, and the breathing, and the flow of the music will blend into a dynamic unity so that you will feel you are the rhythm, you are flowing.

Next you move into *staccato* following whatever music you choose that has a hard, driving, pulsating beat. Let the beat take hold of you. Then, inhaling with each movement and letting out the breath explosively, making whatever sounds come out, your movements become fast paced, thrusting, pounding -- each movement isolated, with a beginning and an end. You're moving in lines and angles, no longer in circles, and your moves are percussive, short; they've got edges, and your breath releases in bursts of sound. As in every other rhythm, if you put your mind and your concentration in your feet, the waves will flow through your whole body, and you'll become more and more aware of all the parts of your body as they're swept into the beat.

To move into *chaos*, I love to be carried away by tribal African drumming. Chaos is rooted in flowing and staccato rhythms but revs them up beyond control. Jerks, spins, releases take every movement over the edge, yet you remain totally grounded in your feet. You're carried away, surrendering to the surging and darting of the music. Letting the brain and the controlling mind go,

and letting the body loose--no blocks, no inhibitions, no doubts, just pure animal gyrations. All by yourself, who's to care? Go for it!

And the storms of chaos lead ineluctably to the rainbow glow of the *lyrical* phase. The mood of the music is light, bouncy, exhilarating. The moves are airy, playful; your feet hardly touch the floor, all effortless gliding, swinging, twirling. You're as light-footed as a dear; everything is exploratory, delighting. It's the moving of serene joy, of celebration.

Finally comes *stillness*. But not inertia or sedentary intransigence. The movement becomes an inner one, a feeling of empty fullness, of concentration, of vibrant presence. You move in slow motion, or you move and stop, move and stop, feeling your feet, your face, your hands, your total body. No longer is the movement the meditation, but the stillness between. It can look like mime or like breakdancing. Move and stop. Hold. Move and stop. The breath is strong, the vitality intense. The time is now, the place here, every gesture total, measured, your body full of breath, your look direct.

People practicing the rhythms regularly experience dramatic improvements in well-being. One student of mine used to hold all the stress and tension in her life in her lower back. When things got really tough in her life as a high-powered business school professor and corporate consultant, her back would go into spasms. Robin would have to lie in bed for days until her spasms relaxed. As this condition kept recurring and eventually led to her being hospitalized and put in traction several times, the doctors wanted to operate. But after doing the rhythms for several months, her whole body started to loosen up. Now, whenever her back starts seizing up, she moves gently through the rhythms rather than give in to the spasms, and the tension eventually subsides. She starts with flowing movements and gradually moves into and through the stress. She has never returned to the hospital for traction, and of course has never had to have an operation. This fiercely ambitious woman had to be literally knocked off her feet and virtually paralyzed with pain before discovering that movement is the healer.

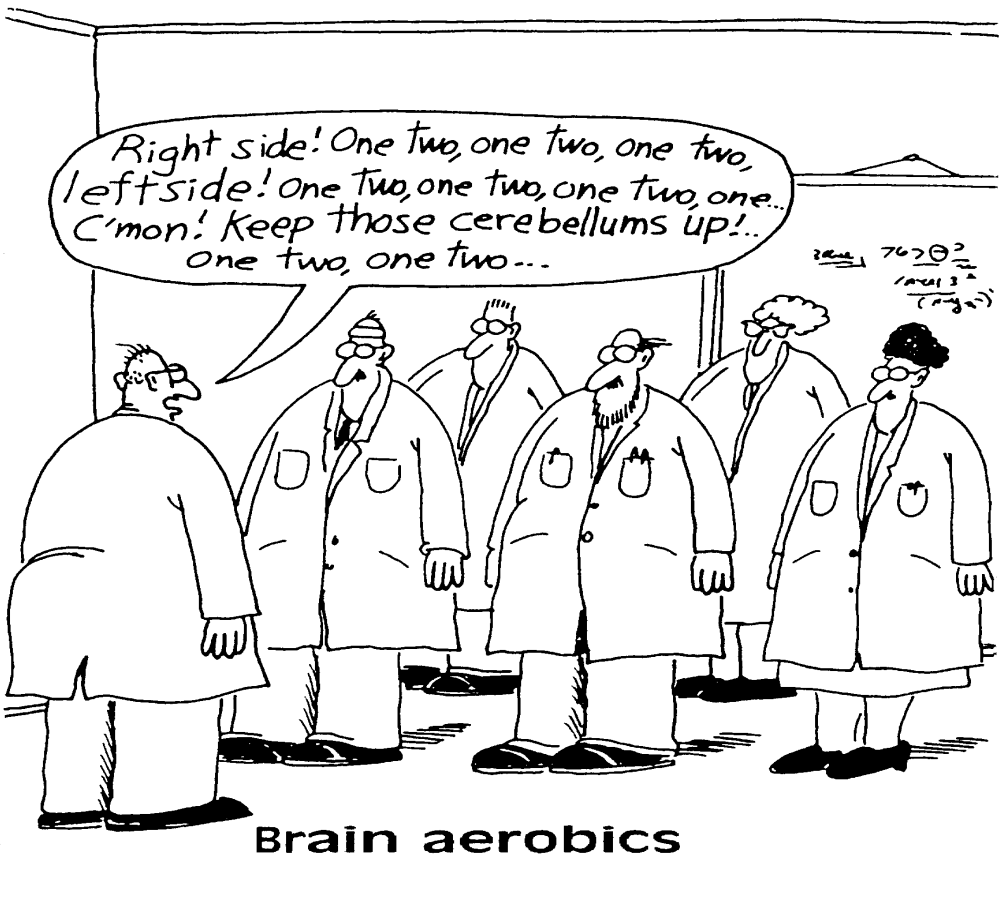
In doing the rhythms, many people tend to find one or more very natural and easy and another daunting and difficult. People in our culture tend to take readily to flowing and staccato, but balk at entering chaos, and find lyrical foreign to them. It's vital to enter into the rhythms we naturally resist because they represent the lost dimensions of our being. Robin, for instance, was so resistant to experiencing chaos that she would get nauseated whenever we began the chaotic phase. I would find her hunched over in a corner holding her stomach. She as terrified of losing control, of surrendering -- on the dance floor, in bed, or in her life generally. But such surrender is essential to our emotional and sexual lives and to experiencing things deeply in whatever sphere. So pay attention to your resistances, and dare to explore these undiscovered regions of yourself. One way is to start just with the music, perhaps with earphones, and let it get deep inside you; gradually you'll discover your innate capacity for this rhythm, and this discovery will benefit you enormously.

We all tend to feel most at home in one particular rhythm or some combination of rhythms. For instance, I spontaneously operate in a flowing rhythm. It's good to find out what rhythm predominates in you in order to understand how you can best relate to other people, to places, to situations. If you're a flowing type and your husband, say, is a staccato personality, as mine is, realizing this difference in basic rhythm allows you to understand how you constantly interrelate -- one person is always dashing off, totally goal oriented, while the other saunters along taking everything in. In realizing the differences, you can learn how to create the best music of your life together.

Understanding the rhythms will open you up to new perceptions. You will become attuned to the rhythm of places and understand that New York is a staccato city, while Jamaica is lyrical. You can figure out how to link your energy with the pulse that's going on around you at the moment. Being unconsciously staccato in a still place means being totally out of sync. And this unconscious mismatching of rhythms goes on all the time, with lovers who constantly get on each other's nerves, unaware that one is operating in one rhythm and the other in another, or with people who live in places that slowly drive them crazy. You need to catch the rhythms of people, places, times of the year, the week, the day, and learn to dance with them.

So what rhythm are you? The easiest way to find out is to do the rhythms and discover which feel most natural, most your own. You may discover you've been living one way -- say, very driven, staccato or in constant emotional chaos -- but your real natural rhythm is another one. It's also easy to recognize dominant rhythms in others -- your family, your friends, celebrities. Each person's essential rhythm is like his or her signature or fingerprint. The way people move is the way they are. Since we are complex beings, we can blend into heady mixes of the rhythms, such as flowing/chaos, staccato/lyrical, or any other combination.
I consider doing the rhythms a shamanic practice, but dance is not the only way. Once you begin to explore the rhythms through regular practice, you can easily find many other ways to do them. For example, you can run the different rhythms -- from flowing strides through pounding running, to light stepping and the deliberate pacing of cooldown. Or you can do aerobics in each rhythm or swim, skate, or even sing them. One person who has worked with me privately sings the rhythms as he drives along, safe in the privacy of his car to hum, chant, belt out Iyrics. This man is a Wall Street lawyer who suffers from a generalized ennui that leaves him stuck in intense inertia, his face impassive, his voice lifeless, his outlook bleak. But as he does the rhythms -- dancing them, singing them -- movement comes back into his face, light comes into his eyes, energy into his step, serenity and enthusiasm into his voice. This no-nonsense man, who hates all psycho-babble and New Age talk, tells me that doing the rhythms is like being taken over by a force from within that is fresh and invigorating but somehow natural and his own, like making love without sex, like feeling a sense of your soul. He speaks about this experience with a kind of ecstatic glow he can't believe he's experiencing. The rhythms do lead to the ecstasy of reconnecting with the spirit of your body, and the ways of exercising them are many and varied. All that's needed is the willingness to do them.

Movement is the medium of change. In my experience, if you put your psyche in motion it will heal itself. The enemy is inertia, be it of energy in the body, walls around the heart, or fixed attitudes in the mind. Movement is the medicine



6. THERE IS A DANCER TRAPPED INSIDE EVERYBODY.

Michael Toms/New Dimensions. Reprinted from New Dimensions Radio Newsletter July/August, 1989). New Dimensions Radio, Dept. NRI, P.O. Box 410510, San Francisco, CA 94141

It was a time in my life when I was uncovering long-buried parts of myself. New visions of who I was and could be were emerging. Not the least of these was the realization that during my twenties I had followed the male myth: *find a career; make money; be successful.* Now in my early thirties the feminine was awakening within me. Feelings were taking hold. My contemplative self was deepening. Breaking down protective walls and changing old patterns had allowed a receptivity to emerge. I was now more open than closed, and it marked a significant shift. Into this bubbling psychic pot came Gabrielle Roth. I was ready.

She swept in like a warm wind on a winter's day, and I was carried away with her natural grace and sensual power. In short, I was captivated, but not in the usual "woman engulfs man," trance-like dance we're so familiar with; rather in a deeply appreciative way, honoring the wisdom of life's mystery. She provided the impetus for me to continue opening my heart, and her belief in my capacity for movement inspired me to go deeper.

So it has been over the years as Gabrielle has moved with her unique vision and I have continued to follow my path. We come together from time to time, engage in dialogue and mutual story telling, and I come away enriched and empowered until the next chapter.

During the most recent time we were together, shortly after the publication of her first book, Maps to Ecstasy: Teachings of An Urban Shaman, she spoke of her origins and how she came to create her original approach to movement: "I danced before I walked. I was always fascinated by dance and by dancers. As a child I used to dance and pretend to do ballet. Later, I took ballet and modern dance and was really studying to be a dancer. I put myself through college teaching movement, which was slightly different from dance. It was something that I had to make up because I worked with children and senior citizens and in mental institutions with schizophrenics and other patients. It was my way of survival. The only thing I knew was how to dance, so that's what I ended up teaching.

"Ironically I ended up having a bad ski accident and hurt my knee, and I was told I would never dance again. I went into a severe depression. It was a deep healing crisis for me. And that's what took me to Esalen. I would sit there and watch people pass by me and watch them move. I began to see that people didn't really move. They weren't really fluid. There was a dancer trapped inside every body. And I began to form a body of work that was designed to seduce the dancer out of that prison and into the flow."

While at Esalen, Gabrielle met Fritz Perls, the acknowledged father of Gestalt Therapy, who quickly recognized her creative talents and invited her to teach his students how to move. Their first meeting was memorable. Fritz noticed Gabrielle reading his book, In and Out of the Garbage Pail. He came over, took it out of her hands, and threw it over the cliff into the Pacific Ocean saying, "If I knew how to dance I wouldn't have written that book." She came to realize that Fritz was an extraordinary dancer in his own way -- it just all happened mostly in his own mind. From him she learned about the connection of psychology to the body, the subtle dance occurring within the body all the time.

Gabrielle also was influenced by the anthropologist and visionary thinker, Gregory Bateson, who was residing at Esalen as he was dying from cancer. She spoke of his childlike openness, "I remember when he first sat down in front of me, when I realized I had to lecture in front of Gregory Bateson. I was tongue-tied. Then I looked down and there he was like a schoolboy, total innocence and trust, just looking up at me . . . I think I went deeper into myself than I've ever been. He was that kind of inspirational person. To the very end he was still learning and exploring and experiencing."

For Gabrielle, Esalen provided a natural womb-like environment in which to explore and learn. She was accepted and nurtured by the place itself, which is feminine and healing. Located on the sheer cliffs of the spectacular Big Sur coast in Northern California at the site of hot baths used by the native Indians for millennia, Esalen is the creative mother of the, human potential movement. It was the perfect laboratory for Gabrielle to explore and build the foundation for her work, just as it has spawned the work of so many other teachers.

After three years she left Esalen and eventually relocated to the east coast where she now lives and works within an urban environment -- Manhattan -- which is the polar opposite of the bucolic Esalen. Ordinarily, we think of shamans living in the jungle wilds or desert vastnesses, rarely, if ever, associating them with big cities. I asked her about working in the urban wilderness and she replied, "In the Sixties there was so much emphasis on transcendence. I've never been for

transcendence because I think it's very temporary. It's easy to go sit somewhere on a mountain top and find inner peace, but you've got to bring that inner peace into the urban environment. You've got to be able to have it on the freeway, the subway, or while doing all the routine activities like washing the dishes, cleaning the house, or shopping; it doesn't matter. You've got to be able to take this sense of divine pleasure wherever you go... to see that every moment is precious."

I remember that scene in one of Castaneda's books where he describes meeting Don Juan in downtown Mexico City. Don Juan is dressed as an ordinary businessman in a three-piece suit, and Castaneda is dumbfounded. But, of course, the message is that the teacher will appear anywhere -- even in the middle of the metropolis -- and adapt to the surrounding environs. Gabrielle is a modern day shaman. She wears the clothes of the culture, works in the belly of the beast, but moves to the sound of a different drummer and sings a different song -- one that calls us home to the center of ourselves. It is a song of the heart, filled with pathos and longing, love and passion, not only reminding us of the human struggle, which begins with our arrival through the birth canal, but also of life-s beauty, exemplified by the act of making love.

We live in strange times, and such a song is much needed. It is easy to feel overwhelmed by the chaos and the crises as we view the external world. Gabrielle calls us to the inner depths, where we can see that the chaos is within us and the crises are our own.

The shaman is not immune. Indeed, the shaman lives the experience fully, then reveals the pathway through to the other side. Gabrielle mentioned experiencing a deep despair over the planetary environmental crisis. Then she realized how all the problems may be necessary catalysts and how important it is to return to the shamanic was, which is at the core of our culture. The rudiments of religion probably began 25,000 years ago in a Siberian cave with a shaman around a fire. The word *religion* comes from the Latin *religio*, which means *to bond with* or *reverence for the gods*. The shaman tells us we are one with life and helps us to realize that we are bound together with everyone and everything else. Gabrielle pointed to this oneness with the earth and explained its importance, "What we are doing to the Mother body is no different from what we are doing to our own bodies. We are polluting ourselves, our physical bodies, hearts and minds. . . It's not that the sky is out there and *it's* polluted or the ocean is down there and *it's* polluted, because *we* are space and water and matter. We *are* these elements. There is no separation, so we are looking at a mirror of the Self."

According to Gabrielle, everything begins with the Self; the Self includes everything else. She has created a map to get out of our heads and into our bodies. The quantum physicists are telling us everything is interconnected. Gabrielle's way of connecting our disparate parts into a cohesive whole is through rhythm, which allows beingness to unfold. She said, "Everything in the universe is about movement and in my work all I've done is to see that everything moves in waves. Sound moves in waves. Light moves in waves. We move in waves. Over a period of ten years working with people and movement I began to see there were recurring patterns, rhythm patterns, and I began to map them out."

She noticed that the patterns varied from ordered to chaotic and from heavy to light and lyrical. There were still patterns and sharp, staccato, percussive movement patterns. And she saw that they were connected and somehow formed the wave of how energy moves and changes for each of us. We are the creative source of the content. Gabrielle has discovered how, through movement, we can experience our true power and realize our innate creativity. This is not an intellectual process, to be

understood by the mind; it is a *moving* process to be lived by the body. She is helping to restore the sacred and to move us into our own power.

She reflected upon the immense challenge we face in the future: "I know it seems almost overwhelming, because it certainly has been for me -- to be a speck of dust in an incredibly fast moving and rapidly deteriorating universe. But I suggest to each of us that we have the power to change, that we have the power to move, that we are the movers and shakers of this last little section of the twentieth century. It's up to us, and we can do it. But we need to stop and pay attention, and then we need to move. And I mean really move. Sweat your prayers, dance your pain, and move on.

7. I MOVE.... THEREFORE I AM

By Jay A. Seitz,
1993, March/April, Psychology Today, pp. 50-55

7.1. Introduction

It's time to jettison antiquated ideas about the relationship between mind and body. Your body "thinks" just as much as your mind. Ever since the Greeks, movement in Western culture has been concerned with sport, recreation, and the care of the body, without reference to the ways it infuses thought.

Imagine the following scenario. You have lost the keys to your car, probably quite a common occurrence for many of us.

You are in a hurry to get to the store and pick up some groceries for dinner. Only you seem to have misplaced your car keys and just can't remember where you put them earlier in the day. You scratch your head. Then you unfurl your fingers, one by one, using them as external memory prompts to enumerate the places you've been and rule out where you may have left them. You visualize the rooms where you spent the better part of the afternoon and then literally retrace your steps, looking atop and beneath chairs and tables.

Your facial muscles register frustration as you ask a family member for help, using your motor articulatory apparatus--that is, your vocal tract--to wonder aloud, "Now, where did I leave those keys?" At some point, you throw up your hands in disgust as you recognize the futility of your search. Finally it dawns on you that you probably left your keys in the car. You saunter outside, delighted to retrieve them.

In every case, movement or action of the body ran in parallel with thought and emotion. You scratched your head while thinking, calculated with your fingers as a kind of bodily abacus, followed your thoughts on foot from room to room, expressed your feelings through facial and bodily gestures and vocal intonation, and communicated your thoughts through your voice. Activity or motion always accompanied thought and emotion. Is this just a happy coincidence? Or do we really think with the body?

Ordinarily we consider the thinking process a purely mental activity. As our 17th century philosopher friend Rene Descartes declared, "I think, therefore I am" just a mind separate from my body. Almost all of us still believe this is the way things work, and take it for granted that mind and body are totally different things. Our popular ways of speaking even signify this. We refer to

athletes as "dumb jocks" We denigrate thinking types as "nerds" or "eggheads." We regard these two realms as separate and unequal.

We are caught up in the persistent Cartesian dualism that we are comprised of two fundamentally different things--an extended substance (body) and an unextended substance (mind). But what if the mind and the body are really two different aspects of the same thing? What if the brain systems for movement and the brain systems for thought and emotion are intimately connected to each other so that we are literally a "thinking (and feeling) body?"

As it turns out, there are indeed extensive neural connections in the brain from those parts that oversee movement, equilibrium, and balance of the body to those parts that direct thought and emotion. This suggests a novel hypothesis. Our brain doesn't simply manage or regulate the body in the way that a chief executive manages a corporation. The brain doesn't direct the body and the body follows slavishly. What the brain communicates to the body depends on what information the body has imparted to the brain and vice-versa. The two are in an indissoluble union. The implication is that we literally think with our bodies, that is, we think kinesically.

7.2. Thinking Kinesically

Consider some ways we think with the body in everyday experience:

∞ Athletes and dancers think through their bodies in returning a tennis serve, for example, or in completing a complicated dance step. They can capture these "thoughts" on paper using a kinesic language. The coach records the diverse positions of players on a team and their organized movements in a playbook. The choreographer chronicles the steps and body motions in dance notation.

∞ We "reason" with our hands when we are playing or improvising at the piano or any other instrument. The idea is suggestively captured in the advertisement that says, "Let your fingers do the walking."

∞ Similarly, when we "speak" with our hands we are using a gestural language. Gesture often accompanies speech--but it also substitutes for it. When deaf persons communicate with each other through sign language, they articulate their thoughts and feelings through movement and gesture in place of vocalizations.

∞ We also use "body language in interacting with others, whole-body movements expressed through posture. In America, for example, men communicate power and status by standing obliquely to one another during conversation. Women strive for interpersonal connection and are more inclined to face one another. Without even being aware of it perhaps, they are using the body to disclose intention.

∞ Moreover, the voice carries important emotional information in the way we intone what we say. The vocal sounds and their inflections are, of course, a part of the body; they originate in the larynx and are products of our motor articulatory apparatus. We can be sarcastic or surprised; both are conveyed by tone of voice. Such vocal prosody operates like an emotional subcarrier signal, much the way the FM signal is transmitted to our radios. Clearly, we express our thoughts and feelings through the tone of our voice.

∞ Facial muscles, too, carry a tremendous amount of information about our emotional life and what we may be thinking. Surprise on the face in response to a joke suggests that we understand its intellectual content at the same moment we apprehend its emotional dissonance. We appreciate the wisecrack through our body's reaction to it.

∞ Rhythm is similarly tied to the body. Music, exercise, making love, and even our understanding of time is a consequence of our body's natural rhythm--more exactly, our inner biological clock. This natural rhythmic pulse shapes our conception of music, as composer Aaron Copland informed us, as well as our self expressed through physicality.

∞ The act of drawing or the execution of a painting captures more than just visual qualities of people, objects, and scenes. It is also an expression of the body--hand, limb, and whole body movements--in depicting action as well as stasis, or the weight and "feel" of objects. A three-year-old drawing a circle will use the whole arm to render it. Depiction, one could say, occurs through extensions of bodily activity. In rendering the human form through drawing, an artist captures the "fullness" of the human figure by using her sense of her own body.

∞ In fact, thinking kinesically can be viewed as the use of our sense of touch in understanding the texture, size, and "feel" of objects. The world-renowned developmental psychologist Jean Piaget described a young child opening and dosing her mouth in attempting to "figure out" how to get an object out of a closed matchbox. Children first learn to count using hands and fingers, and begin to enumerate their world using pointing gestures to make a one-on-one correspondence between objects and people. This natural learning mode has made its way into education as hands-on learning. When actual objects are used to demonstrate numerical concepts such as fractions, hands-on learning can be highly effective. When we construct something with our hands, knit or sew, build a tower with blocks or bricks and mortar, fix something around the house like an appliance or car engine, are we not thinking with our body? These suggest that mechanical skills underlie the development of technology and of civilizations.

7.3. Manipulating Ideas

Imagine the brain as an apple. The fleshy part of the apple is the thinking part of the brain, the cerebral cortex, the most evolutionarily advanced. The core of the apple is where the emotions and primitive memory functions reside, the subcortex. Researchers have shown that there are neural connections from the cerebellar cortex, in the back of the brain, to the frontal part of the cerebral cortex.

The cerebellar cortex is involved in the coordination of voluntary muscular movement as well as our capacity to maintain balance and equilibrium. The frontal cortex is the meeting place of our emotional life and our thinking part. That's where affective dispatches from the subcortex join information received from the rest of the cerebral cortex. It is where, neuroscientists now believe, our sense of self resides, not to mention our capacity to make decisions and think logically.

The connections between the cerebellar cortex and the frontal cortex suggest a novel hypothesis. A trio of neuroscientists--Henrietta and Alan Leiner, and Robert Dow-- challenge the assumption that motor functions such as walking or raising your hand are under exclusive control of the motor part of the cerebral cortex. They believe the neural pathways from cerebellar to frontal cortex also enable the "skilled manipulation of ideas."

Our brain doesn't simply "manage" or "execute" what particular activity our body is engaged in at the moment; it appears that we literally "think" with our body. What we desire, believe, and feel is expressed entirely through our body's actions and movements--that is, we express thoughts and feelings kinesically. We can choose to wave to a friend or not. The skeletal muscles that carry out this task are under voluntary control. And if voluntary muscles are directed by our will, our thought, then they function as an organ of the mind.

7.4. "Moving" Experiences

The power to think with our body, then, should also affect our very personality, as it is conveyed through facial expression, gesture, posture, as well as vocal inflection.

Through this means, connection between the mind and the body turns out to be central to our core sense of self and our relationship to others. We know that facial expressivity, controlled by underlying musculature, is the chief conduit of emotions and underlies our ability to read social cues in others. It helps us establish social contact, convey thoughts and feelings, as well as understand another person's inner mental states.

William James, philosopher and psychologist, proposed that bodily changes affect our emotional states. That is, we label our emotional states based on our ability to interpret bodily experiences.

People who suffer from gross loss of bodily sensations, as in spinal cord lesions that disrupt visceral responses, report less intense emotional experiences. Indeed, Robert Zajonc, Ph.D., head of the Institute for Social Research at the University of Michigan, has evidence that simply by making the facial expression you abet development of the feeling. Forcing a smile actually puts you in a better mood.

So you can "think" yourself happier by changing the expression on your face, which in turn changes how you feel. Zajonc contends that the relaxing and tightening of facial muscles alters the temperature of the blood reaching the brain, which influences brain areas that regulate emotion.

7.5. Kidding Around

The relation between emotions and physical actions begins very early in life. I have been investigating how children first express themselves aesthetically through their bodies; through facial expression, gesture, and posture. I am trying to determine what kinds of skills are involved and how they develop.

A child's first movements dearly have emotional connotations; the sensory receptors that signal movement are directly connected to that part of the brain that generates emotion. From observation, we know that at around age two, even depictive gestures, such as learning to bow, or ritual gestures, performed in religious and other ceremonies, have emotional overtones.

By three to four years, children become sensitive to the increased dynamic properties of movement, such as direction, force, rhythm, enclosure, and balance. They can also balance themselves on a small chair and sustain the correct rhythm to a simple dance. They are learning to "think" with their bodies--they can distinguish left-right and up-down movements, soft gliding from strong explosive movements. They perceive that their body is a physical object in a "container"--it has dear boundaries-- that takes up space.

By six they know that movements have psychological overtones. They can express sadness through the gesture of a downturned head, or represent a man thinking by placing their hand under their chin. Educators argue that teaching dance movement to preschoolers is important because it aids the child in developing socially and acquiring the ability to organize and communicate thoughts and feelings.

Social and cognitive development is intimately connected with the body from the earliest stages of life. University of Miami psychologist Tiffany Field has demonstrated the power of touch with tiny preterm infants. Those preemies who receive extensive touching from caretakers show measurably better social and intellectual development later in infancy and in the preschool years than infants who receive minimal handling.

7.6. Body English

The fundamental importance of the body in the development of our intellect and social nature, and in the expression of the personality, is seen in the role that posture and gesture play in human social interaction.

To think is to communicate with ourselves and others through gesture and posture.

Instrumental gestures such as pointing and reaching are enactions of the two central functions of language--to declare (point) or request (reach for) something or someone.

Before infants can speak they express their needs through gesture. In their first year, they point to objects they find attractive or moving; they hold up their arms when they want to be picked up. And as adults, we use iconic gestures to visually represent objects a motion of the hand to denote a hammer--or symbolic gestures to signify a feeling or idea--a "V" of our fingers to denote freedom, a downturned head for sadness. Gesture and posture enable us to organize and communicate concepts, feelings, and events through movement. Our very personalities, that is, self-expression, are constituted through bodily movement and activity.

7.7. Awareness Via The Senses

And if we stop to think about what we are expressing at the moment, we become self-aware or -conscious of what we are doing. Consciousness has been traditionally conceived, primarily by philosophers, as a mental act, a property of mind. But self-awareness is an act of the body. We receive information about the external world through our five senses, and about internal bodily states through our kinesthetic sense. We know what and where things are through the pressure, position, and stretch of muscles and tendons. If something is hard to lift, we are aware that it is heavy. If it is an apple or a pear, we recognize it by shape. Consciousness is really awareness of ourselves through our bodies' reactions to the world around us.

If we are a thinking body that figures prominently in self-expression, self-awareness, and communicating with others, then the body must have a central role in problem-solving. Psychologists have been toying for some time with the idea that our body has its own intelligence"

Piaget argued that sensori-motor experience is the primary way in which the infant gains knowledge of the world. When a 14-month-old infant tugs on a blanket to pull her rattle closer, she is demonstrating her ability to use one object to obtain another--so-called instrumental intelligence, or means-ends knowledge. More recently, Howard Gardner, the creativity expert working at Harvard

University, has suggested that we have a separate bodily-kinesthetic intelligence with two key aspects. One is masterful coordination of our bodily movements, the other is the ability to manipulate objects in a skilled manner.

7.8. We Are The World

Many thinkers, including the philosopher Mark Johnson and psychologist Seymour Fisher, have advanced the idea that bodily experience provides the framework for the very way we structure our concepts of the world. Right and left, up and down, in and on, front and back--these are concepts acquired through experience of the body and generalized to surrounding space; we first learn these (and as adults still navigate by them) by experiencing them with our hands and bodies.

Whatever else bodily experiences contributes to, it certainly figures prominently in the development of our mental scheme of our bodies, or body image. According to Fisher, professor of psychology at the State University of New York Upstate Medical Center in Syracuse, the relationship is dearly dramatized in people with certain extreme forms of pathology that distort the body image in "extravagant ways."

Take the case of Gerstmann Syndrome. Due to a lesion in the cerebral cortex, afflicted persons have trouble perceiving and identifying parts of their own body. They can't distinguish right from left on their own or another's body. They can't recognize their own fingers, name them, or point out individual digits. Nor can they count, reflecting the fact that fingers figure prominently in the development of arithmetical operations early in life.

If movement is action directed toward a goal, then it is problem-solving in the bodily sense. It is means-ends knowledge through our bodies.

7.9. How To Boogie

According to renowned psychologist Jerome Bruner, before we move we first represent in our minds a desired goal or intended state. That gives rise to a "hypothesis," a working idea about how to fulfill the goal--say, execute a dance step--under given conditions--in rhythm with certain music, for example. We check the results in a match-mismatch process, and correct our movements when they don't match what we intended.

Through this process, small acts of skill are incorporated into larger motor routines or movement sequences. You learned to ride a bicycle by integrating various movements required of your legs (pedaling), head (fixing on a course), and trunk (balancing). Kinesthetic thinking lies in orchestrating a sequence of motor skills, integrating your multi-sensory, emotional, and intellectual experiences, and selecting and executing appropriate movements. Even the simple act of drawing requires not solely depicting the visual properties of people, objects, and scenes; we also incorporate our body's experience of these objects, or physiognomic perception. According to Rudolf Arnheim, the psychologist of art, and Ernst Gombrich, the chronicler of artistry, we perceive the "solidity" and "strength" of a building, the "aliveness" of a landscape and the "warmth" of a color by interpreting what we know through our bodily experiences of such conditions.

7.10. The Logic Of A Toss

The problem-solving capacity of the body is manifest in myriad ways. Martha Graham, the genius of modern dance, maintains that the body has its very own logic, motor logic. Certain movements come naturally because they logically follow from the plan of the movement--a baseball throw or a somersault.

My own research suggests that there are three core cognitive components of kinesthetic intelligence--motor logic, kinesthetic memory, and kinesthetic awareness. Motor logic encompasses your neuromuscular skill in articulating and ordering movement.

Kinesthetic memory, akin to what researchers of human cognition call procedural knowledge, concerns how to do something--the movement sequences of riding a bicycle. It enables you to think in terms of movement by your ability to mentally reconstruct muscular effort, movement, and position in space. Kinesthetic awareness--which informs you what and where things are by the pressure and stretch of muscles allows you to consciously appreciate your body's position and direction in space.

Such abilities are highly developed in dancers, athletes, craftsman, and others who work with their hands and bodies. But it is a mistake to think they are restricted to them. All work involves movement. Work directs movement towards purposes. And means-ends knowledge fosters action.

From the days of the Greeks, movement in Western culture has been concerned with sport, recreation, and the care of the body, without reference to how it infuses thought. Physical education early on was divorced from the development of other subject matters, especially literature. The balance and interrelationship between mind and body were all but forgotten.

Now, however, we are on the verge of correcting this age-old misunderstanding. With new knowledge gained from the social and neurosciences and a deeper understanding achieved through study of the artistic mind, it is now more apropos to say that we think with our bodies not simply inhabit them.

7.11. How To Develop Your Thinking Body

Body therapies. One of the most effective ways to relieve stress, and irrational thoughts and feelings, is through so-called body therapies. Sports and dance are the most common examples. The Alexander technique, Feldenkreis method of body awareness, deep muscle massage, and Pilates method all work the body systematically. Try one! If it is not known exactly how these types of therapies may work, that's because the deep interconnections between the body and the mind are still largely unexplored.

Activities such as **drawing, painting, photography**, and **playing a musical instrument (or singing)** involve the thinking body in important ways. They interplay our intellectual and emotional experiences, cultivate our aesthetic sensibilities, and enhance our enjoyment of life, Take up an artistic pursuit, enlist a private tutor or enroll in a college-level course in your community, and develop the aesthetic dimensions of the thinking body.

Deploy your **mechanical skills**. That enhances both your bodily problem-solving abilities and your enjoyment. Engage in an action-oriented project such as designing and building something material or repairing an object or appliance.

8. MOSHE'S HEALING TOUCH

Runner's World Magazine (1978?), by Bruce T. Holmes
670 Hinman Avenue #lD
Evanston, Illinois 60202

It seems these days I relate everything to the running. Much of what I experience seems to flow from or relate back to it. It was the running which created my fascination with the writings of Moshe Feldenkrais, and the running added a further concern.

The technical term for my problem is chondromalacia of the knee, which simply means softness or deterioration of the cartilage. Unfortunately, giving something a name doesn't necessarily help one deal with the situation. Whenever I got over 50 miles a week my knees would fall apart on me. I can remember occasions when I could hardly walk.

I went to the medical community for help. You know, a podiatrist, who sent me to an orthopedist, who sent me to a physical therapist . . . The people in the know were of the following learned opinion: I was suffering from that dreaded condition "floating kneecap." At some point in the future orthotics would probably be helpful, but my most pressing need was quadriceps exercises. And if they didn't do the job, well, there was this simple operation which they evidently do all the time.

The quadriceps exercises resulted in some very strong quadriceps, almost wrecked my back and didn't do a thing for my running. In fact, things were getting worse. The condition started cropping up at ever lower mileages. On a couple of occasions I noticed a soft, furtive voice whispering sweetly in my ear, "Look, you've got hospitalization insurance. An operation wouldn't cost a thing. You'd only be on your back a few days. They do it all the time. Your worries would be over." But the operation never happened, and therein lies a tale.

"The Way of Moshe" rhymes, though perhaps that sounds uncomfortably spiritual. The work is more commonly referred to as the Feldenkrais exercises. But when you've been around the old man for a while, you're liable to get mystical about the whole thing and start waxing poetic. The "old man" is a short, rotund, twinkling, 72-year-old Israeli by the name of Moshe Feldenkrais, probably the wisest, funniest, most fascinating man I've ever known.

He is the author of a unique therapy based on the vast capacity for learning which makes our species so uncommon but which also allows us to learn incorrectly. We can become creatures of habit, misusing ourselves, reacting to fresh demands with wired-in responses which are often inefficient and sometimes harmful.

The Feldenkrais work has had an enormous effect on the way I run and on the way I live my life. For anyone trying to use his or her body intelligently it is a system of thought worth considering.

The easiest place to begin might be with Moshe's background. His doctorate was in physics, and he was a black belt judo master, father of the judo clubs of France and author of a number of books on the subject. Even with these initial works you can see the cross-pollination, the laws of physics being applied to the operations of the body.

Then there was a knee injury which was to prove fateful. The doctors gloomily suggested surgery and refused to be optimistic about the results. Moshe didn't like the odds and set out to find a solution on his own. He immersed himself in neurophysiology, anatomy, learning theory, biochemistry, psychology, anthropology, whatever seemed even vaguely applicable. The resultant gestalt even reflects Moshe's study of Zen with Dr. Suzuki. And he came up with a solution of sorts. He taught himself how to use the knee correctly and, lo and behold, the body was able to heal itself.

The understandings and conclusions he had reached were presented in a book, The Body and Mature Behaviour. Now, more than 25 years later, it is referred to as a pioneering work, but at the time it was largely ignored. So Feldenkrais put such concerns behind him and went back to being a physicist. Except it didn't end there. Friends came to him with ailments, the word spread.

Finally, Moshe gave up his life's work and at the age of 50 became a "quack." Can you imagine the poor man's Jewish mother whose wonderful son the physicist suddenly gave it all up for some mysterious process clearly not sanctioned by the medical world. And while Feldenkrais now uses the word "quack" with great delight, one senses that it wasn't always so. He is a proud man and there was difficult uphill years before his work began to be recognized by the academic and medical communities.

Yet it all seems so obvious in retrospect. Our musculature does not function except as directed by the nervous system. When learning a sport we don't train our bodies so much as our minds. The arm doesn't learn how to hit a tennis ball properly. Instead the brain learns a complex series of neural firings in a specific pattern and time frame.

The way we hold ourselves or move is a wide array of neural impulses that is part of the brain's normal functioning (a state which includes a complex interweave of emotion, thought, sensory impressions, spatial and temporal orientation). Change the way you move and what you've really changed is the nature of the mind.

In the midst of all the difficulties I was having with my knees, the Humanistic Psychology Institute was arranging for Dr. Feldenkrais to come to America to do a three-year training program in functional integration therapy. To date he had only trained a handful of associates and it was time to leave a legacy. As I applied for admission I couldn't help remembering the story of Feldenkrais and the infamous knee injury. Maybe I'd find an answer to my own problems.

The summer of 1975 turned out to be one of the most satisfying of my life. Sixty-five of us gathered in San Francisco for the first three months of the training. We spent the mornings rolling around on the floor doing the Feldenkrais exercises: easy, gently, explorations in awareness, learning the ways in which we limit ourselves and going beyond.

"People use a mere 10% of their capacity," Moshe was fond of saying. I suppose at times we must have looked like a gaggle of apprentice acrobats, delighting in moments of improved flexibility until Moshe brought us back to earth.

"It doesn't matter," he would cry. "It is a little present, but it is not the point. Was Newton flexible? No one knows and no one cares. Flexibility is irrelevant. What we are after is flexible minds."

Before, during and after the exercises Moshe would lecture and crack jokes, insisting that unless we enjoyed ourselves we wouldn't learn well.

In the afternoons there was the table work. We had to become sensitized to the point where by touching another body we could feel what had gone wrong and with our hands help someone experience a more optimal way of functioning.

"It's like dancing," Moshe once explained, beaming as he waltzed an imaginary partner about. "If you take a friendly girl who can dance, and she likes you and wants you to dance, she takes you by her hand and suddenly you can dance exactly like anybody else. The two become one body, moving together. We have to establish that two-way human contact which is of the most delicate nature, so that the person feels you will guide him where he can't go himself."

I'd had that experience myself. When learning a folk dance with a partner who was truly confident in her movements, suddenly I'd be dancing beautifully without really being able to explain what I was doing.

Moshe's understanding of the nervous system has applications ranging from scoliosis (curvature of the spine), to the rehabilitation of stroke victims, to multiple sclerosis, to (the wait was not in vain) helping athletes perform better. Which brings us finally to chondromalacia of the knees and my own experience of Feldenkrais.

A few days into the training I sat down beside Dr. Feldenkrais, introduced myself, asked him to forgive the intrusion, and launched into a detailed narrative of the floating kneecap and my odyssey through the medical community. As I talked his countenance grew ever more contemptuous and impatient until he finally cut me off.

"Nonsense, nonsense. Your knees hurt because you don't know how to run. Your feet are wrong. You move your knees incorrectly. Your adductors are tight. Your pelvis doesn't rotate. Your back is stiff. In fact, you have no movement at all between your first and second lumbar vertebrae."

I was quickly going into shock. My faults seemed endless. And how the hell could he know all that. He made it seem a miracle I wasn't in a wheelchair. He ended his cataloging with a mournful, "Weak quadriceps," as he glanced to the heavens. Sometimes it seemed as if the stupidity of the world was too much for the poor man to bear.

So I was changed. My back was slowly loosened and I started working on rotating my hips. One day it was explained to me that I was doing a hook to the outside with my left knee every time I brought it forward. On my run that night I focused every ounce of my attention on that knee, observing as uncritically as possible its position each time I pulled it through.

"There's the arc."
"Better. "
"Too much inside."
"Ah, that's it."

By the end of the run I could tell to the centimeter whether the knee was coming through straight or not. And I had discovered a powerful tool. Awareness.

By sensing, examining, experiencing my stride, I could rid it of the extraneous. One of the central precepts of the Feldenkrais exercises is that if you pay attention to a movement, the tonus and quality will improve. "Attention, attention, attention," the Zen master wrote when asked for wisdom. Both meditation and the Feldenkrais work can be defined as the removal of the habitual from one's life.

On another occasion one of the Feldenkrais assistants became fascinated with my feet and commented, "Look, you have these incredibly high arches and your leg bones are directed down through the outside edges of your feet, which is where you bear the weight. You know you hold yourself like that."

"Me? Surely the way my feet are built isn't my fault."

"Sure, who else? You hold your feet in an arch. Without the tightness it would be much lower. For some reason you've learned to hold your feet like that. Here, lie down."

And so the mysteries began. I understand now what was done, but at the time it seemed utterly strange. For the next 30 minutes my feet were pulled prodded, cajoled and generally shown the folly of their ways. More accurately, my nervous system was re-educated.

When I stood up it was quite unnerving. They weren't my feet. The arches were normal, the leg bones rested squarely over the middle of the feet. Walking felt strange and even a little unsteady, quite as if I was doing it wrong.

Later that week while I was out running I re-experienced the original attitude that went with the high arch. Suddenly I was young again, imagining myself running like an Indian: strong, indomitable, tireless. I had gotten it in my head that Indians ran pigeon-toed, so there I was, cupping my feet to the inside, pulling my arches up.

The results of all this were impressive. My knee problem vanished. I've increased my mileage considerably without a trace of difficulty. I'm running faster than I ever did before. Last and probably least, my shoe size went from a 9½ to a 10½ as the feet flattened out.

I've come to the conclusion that correct style is important. I watch the mistakes my friends make and I'm tempted to say something. (So far I've kept my mouth shut, preferring slow friends to fast enemies.)

A high back-kick simply wastes time and energy.

Leaping a foot off the ground with each stride leaves you out of contact for longer periods of time and needless work is being done to attain that useless elevation.

How can your quadriceps contract freely to lift your knees if the hamstrings opposite them are doing overtime holding you up, trying to keep your forward lean from turning into a dive.

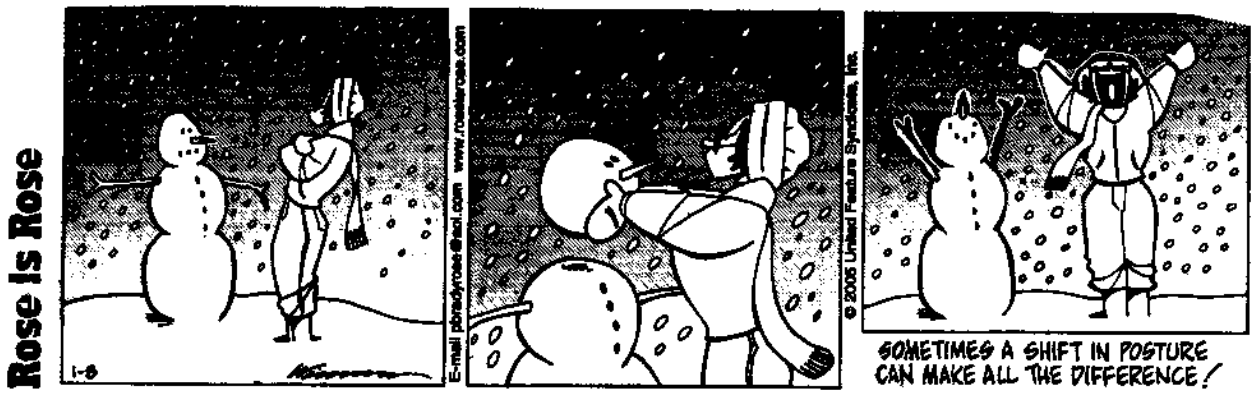
Lead with the hips and let your torso rest upright over the legs.

Try rotating your hips. Don't worry about what the neighbors will think. A little swish can help send the knees forward and might even add an easy inch to each step. On the other hand, don't force yourself to a longer stride; a short one can be more efficient.

I guess the best suggestion is just to become aware of what you're doing.

If you want further thoughts on this sort of thing, World Publications has a really excellent little booklet called Running With Style.

The summer of '75 was an amazing experience for me. The running seemed effortless. I was surrounded by 65 of the nicest people I'd ever met. And always there was Moshe, making us laugh, putting us through the exercises, scowling at our ineptness, telling us stories, performing minor miracles with his hands. In the end I came to love the old man, his goodness and his faults. I came away with a philosophy of life and a glimmering of what it's all about. And an awful lot of studying to do.



9. THE FELDENKRAIS PHENOMENON

The newest maestro of body-mind health is a septuagenarian Israeli physicist who insists that the whole secret lies in how people move

By CHARLES FOX: an English journalist who has lived in the US since 1962. His work has appeared in numerous magazines ranging from Play Boy to the Catholic Digest

QUEST, 1978, December/January, pp. 56-62, 98-99

I lay on my back on the table watching Moshe Feldenkrais bent over my right leg. The old man was puffing slightly, concentrating intensely, turning the leg this way and that, sometimes pushing it slightly, sometimes pulling, sometimes kneading muscles deeply with strong hands to get them to relax and stop working, the signal that the motor cortex had stopped working and was free to receive the signals he wished to transmit to it. And I was suddenly profoundly grateful to him. Blurting out my thanks, I said that these lessons, as he calls them, had given me an ability to move that was freedom.

"Of course," he said brusquely, without pausing to look up. "For you and for everyone else, movement is life."

For almost 40 years this Russian-born Israeli has studied human movement and the way it relates to behavior and learning. I'm convinced that nobody understands more about the way we use our bodies, or is more able to teach us a better way to function, than this former physicist who heals by his teaching.

"Anything that lives, moves," Feldenkrais tells his students. "They thought that a living thing must consume oxygen until they discovered anaerobic microbes, which reproduce but don't breathe oxygen. Life starts with such cells and culminates with the human nervous system. Movement among lower orders is concerned with survival--self-preservation, food, and reproduction. But we

humans have taken it further. Movement allows us to exercise prerogative, our basic freedom of choice."

Although the full meaning of Feldenkrais's insight came to me slowly, I can claim more than ordinary awareness of the equation between movement and freedom. Over the past few years, I have gradually been ceding control of my body to an incurable disease. Last year I consulted Feldenkrais in San Francisco, where he spent the summer teaching his methods. Hearing him talk excited me. But this was nothing compared to the joy of experiencing the Feldenkrais technique. And experience, I was to discover, is itself the essence of that technique.

My trouble is a demyelinating disease commonly referred to as multiple sclerosis. It affects about half a million Americans. The garden variety is apparently caused by a slow-incubating virus that lodges in the central nervous system and blossoms years later to capriciously attack and derange its host with varying degrees of severity. At 28, I was an athlete. At 34, I am no match for Feldenkrais, and he is 74.

When it first came--subtly, almost imperceptibly -- I flew to London to see the quiet-spoken Denis Williams, one of the wisest elders of neurology. "Live life to your capacity," he said. "Fight this thing, but not too hard. Don't let it become your central aspect. And please, stay away from our sort. There's nothing we can do for you."

So I looked to a variety of other therapies, did what I knew I could do myself, and went on with my life. But by the time I went to Feldenkrais I walked with a stick and fought off gravity by attempting to hold myself upright, thrusting my chest forward and my head rigidly back. This puffin's strut quickly exhausted my lower back and legs and on a good day gave me an effective range of only two blocks. Eight months of daily struggle to consciously reorganize my walking posture had proven futile. I couldn't keep my resolutions in mind for more than a few steps.

It was unusually hot for San Francisco when I arrived at the house Feldenkrais had taken for the summer. Paul Rubin brought me. Rubin was about to graduate as a Feldenkrais teacher after three years of training. Inside the house it was shaded and quiet and comfortably old-fashioned. Feldenkrais was working in the front room. He sat on a stool at the head of a small, birdlike woman who lay on a low massage table. He was a short, heavy man in a green sport shirt, gray flannel trousers, and sandals. Tufts of silvery hair circled his massive head. His right eye was closed. Rubin told me he had recently had a cataract removed: that in Paris, between 1934 and 1936, he had built a prototype of the Van de Graaff generator, and that many of the scientists who worked on such high-voltage instruments have developed cataracts. Oddly, the insult added to the strength of his face, which reminded me of a Leonardo da Vinci head--the short curls, the strong forehead, nose, and chin. the pale, almost translucent skin.

When he had finished with the woman I went over to him.
"How are you?" I said.
"Fine. And you?"
"It's a bit hot for me," I said.
"You think it's just hot for you?" he said. "Don't be so egotistical. It's hot for all of us." He had a light, clipped English accent. "What's your complaint?"
"Multiple sclerosis."
"Please. Walk to the other room."
He hung back and watched the awkward process.

"Remove your coat and shoes and lie on your back on the table." He drew up his stool and, placing a palm on my forehead, turned my head softly, stopping and changing hands and direction at the slightest resistance.
"How long have you had this?"
"Six years."
"Has it affected your eyes?"
"Not appreciably."
He gently felt the muscles in my neck.
"Are you married?"
"I was," I said.

This was all he asked. Now he worked without comment for over an hour. He gently kneaded muscles in my neck, chest, and back with hands full of authority and awareness. He did nothing sudden or painful. He knew precisely where muscles were tense and tender from overwork and, ranging over my neck, torso, feet, and legs, he released them. He lightly bent and stretched my arms and legs, bent my knees and folded my legs back. He pulled very lightly on my neck. Every so often, he would again roll my head under his palm. There was nothing for me to do but lie limp, listening to his bulldog breathing and occasional grunt of satisfaction.

Then he lifted me into a sitting position, cradling me under neck and knees as if to guard against undoing the work just begun. He planted my feet squarely under my knees and told me how to stand.

In standing, I activated my musculature for the first time since I'd lain down. And as I came upright there was a very peculiar rush of sensation from feet to brain. Intuitively I sensed that this was a transmission of vital information.

"Notice how it feels to stand," he said.

My usually reflexless legs held a delicious trace of spring in them. He walked beside me as I took a few steps, his hand on my neck gently rolling my weight from leg to leg as I walked.

"Just notice how it feels," was all he said.

But beyond the first few steps, walking was no easier. And far from feeling rested after an hour lying down, I was exhausted and irritable and wanted to sleep. Instead I had to write the old man a check for $100.

It was two days before I noticed any difference. "When you feel a change," Rubin had advised, "don't get caught up in analysis. It's beyond your conscious mind, in the first place, and you'll likely interfere with the process if you insist on an explanation or quantification."

So I simply noticed as I lay in bed that morning how the customary tremors in my legs were far less vigorous than usual, and when I rose, how much better my balance, how pleasant to walk.

In small and private triumph I went nakedly about my house and out onto the deck. My hips felt oiled. My thighs rose easily. I was sitting back on my pelvis and no longer pitching myself forward to walk. I even assaulted steps without a stick, legs obedient as two good dogs.

When I went back, Feldenkrais made me kneel and lie face down across the table while for some time he gently, firmly spoke with fingers to the muscles in my lower back and buttocks.

"Have you injured your back?" he asked.
"No. "
"You haven't had an accident?"
"I broke my knee." I said.
"The right one"
"Yes. I favor that leg."
"And ruin your good one while you do so."
"Yes?"

"Yes. Feel." He guided my hand. On the left side the pelvis was jammed against the back rib cage. On the right there were inches of space between the two.

Again I felt markedly different when I stood. The following day he laid me on my back, rollers under neck and knees, and spent half an hour touching my toes and the soles of my feet very lightly with a small chopping board from the kitchen. That was the lesson. He offered no explanation, but I noticed that I stood with far more confidence.

In his class the following day, coincidentally or not, he demonstrated the same thing with one of his students. "What am I doing?" he asked without pausing. "I know. I'm doing this damn silly thing with a breadboard. But what am I doing?" There were no answers.

"What's the function of a foot? To support a standing human. How does it function?" He got up and pretended to ski. "See? The ankle adjusts to keep the foot flat upon the ground and its owner from slipping. No matter what the angle. Now"--he went back to the girls foot-- "to make a perfect foot we must first relieve it of the weight of the body. One of Freud's most propitious discoveries was the couch. You see, I contend that all successful analysis is accompanied, and probably preceded, by a change in posture and muscular habits of the body and face. By laying his patients down and relieving the major extensor and flexor muscles of the habitual patterns of standing, a change could occur. Freud didn't know this, of course. He laid patients down because he didn't like looking them in the eye. Particularly when they were talking about sex."

The old man looked pleased by the laughter and turned back to the girl. "So we lay her down and then, by touching her foot like so, convince her cerebral cortex that she is really, standing. On a slope. Look!"

Holding the board at a 45-degree angle to her sole, he touched the outside edge of the sole with it as he spoke and the girl's foot turned to meet the board full face while she watched, as much a spectator as the rest of us. He took the board away and touched the inside edge, and the foot turned to flatten itself against the board again. It was a simple movement but most awesome. We were all catching that other secret half of ourselves, unawares. We were conscious eyewitnesses, for once, to unconscious function. I felt like Marco Polo riding into the Forbidden City. A ripple of laughter broke.

"That's right," the old man said. "You should laugh when you learn something as important as this." He teased the foot with his board. "We have made this an intelligent foot. Her brain is working it perfectly, because there is no possibility for the habitual mistakes this girl makes in standing."

As Paul Rubin later explained: "The fundamental mechanism he has taught us to use is the interaction between afferent [sensory] pathways of the central nervous system--the ones that carry information to the brain--and the efferent (motor) network, which carries impulses from brain to muscle. The interaction has long been known, but it was Feldenkrais who saw that it could be used as a tool to improve function and who figured out how."

With this student he had used the host of afferent nerve endings in her foot as a computer terminal to contact the brain and demonstrate to it a more efficient, and therefore more comfortable, way of operating the foot. Instantly the brain had perceived the new way and begun reorganizing. Here, I assume, was my "rush of information" that came after he worked on me.

Now I saw how hopeless had been my conscious attempts to reorganize the way I walked. For the only conscious part of any intentional movement is the decision to make it. The cortex at birth is essentially blank. In the uterus, reflexive. random, and repetitious movement has begun, sparked by impulses genetically encoded in the subcortical centers of the brain. But there's nothing on the big screen, the motor cortex, which initiates intentional movement. Intentional movement starts when a baby's brain becomes physiologically able to record and associate the effects of random movement through two or more sensory modes. In other words, when each specific movement becomes associated with another sensation--a touch, a sound, or a visual occurrence--we can repeat that movement at will.

In short, an infant's reflexive movement develops into intentional movement, and intentional movement quickly becomes habitual. The infant laboriously learns to stand and then to walk. But as soon as such actions are learned they become "automatic." The infant merely punches up STAND or WALK on his motor cortex to trigger a complete series of habitual movements.

Feldenkrais has an exact understanding of this learning process: the order of it, its fine and gross components, the basic neurological "pathways of preference" relating limb to head, eye to pelvis, hip to shoulder, and so on. These subtle relationships determine the way all human movement is initiated and learned, and it is Feldenkrais's remarkable understanding of them that enables him to reprogram the minds not only of "normally" functioning individuals but also of those, as Rubin puts it, "whose cortical library of learned information has been destroyed or has become inaccessible."

When the student on whom he did the breadboard demonstration in class stood up, it was obvious that, through her foot, Feldenkrais had changed the organization of her entire neuromuscular system. Her left eye was visibly larger, the left side of her mouth more relaxed, her left shoulder several inches lower than her right. Feldenkrais looked around with his one-eyed gaze.

"You can reach any muscle you want," he said. "A physiotherapist, a Rolfer (A therapist practicing the techniques of deep massage and manipulation developed by Ida Rolf) will rub the muscle and maybe bring a little more circulation. That's all. But you can make the muscle work," he said. "Yesterday I used this technique on a man who had been paralyzed from the neck down since he was a child, and I got tonus in a foot where no muscle had been active for 32 years."

Feldenkrais was brought to his work by infirmity in himself. Born in Russia in 1904, he left that war-torn country on his own at 14, and six months later arrived in newly created Palestine with 1,000 other Jews. He went to Paris in 1928 to earn a doctorate in applied physics at the Sorbonne, as well as a degree in electrical and mechanical engineering. He worked in France's atomic program, founded the Judo Club of Paris, and wrote several books on the art. He knew Niels Bohr

and Max Born, but only once met Einstein. "I was a schoolboy," he recalls, "but Einstein was proud of me. He patted my head. He was happy to see a Jewish boy with broad shoulders. "

When the Germans invaded Paris in 1940, Feldenkrais and his physicist friends fled to England, bringing with them the "heavy water" developed in atomic research. The British Admiralty put Feldenkrais to work as a weapons scientist and refused to surrender him when the others were called away to make the bomb for Roosevelt. It was then that an old soccer knee injury acted up and turned Feldenkrais to an examination of his own mechanics. Surgeons offered their art but could not be optimistic about the outcome. Feldenkrais declined. Instead, he read everything he could find in German, Russian, French, English, and Hebrew on the structure and function of the nervous system. This led to exhaustive study and experiment with the details of a complex and, for him, fascinating relationship: that between human development, education, and movement.

In 1947, his research culminated in the publication of a book entitled Body and Mature Behaviour: A Study of Anxiety, Sex, Gravitation and Learning. In it Feldenkrais largely dismisses the modern practices of psychology and psychiatry as merely symptomatic of the social pathologies they were meant to cure. He holds instead that the most consistent way to revise human behavior is not through verbal access to the mind, which inclines to self-deception, but via the somatic route, the physical self.

Western insistence upon separation of mind and body, he writes, leads only to "an inextricable confusion of thought." The body reflects the attitude of the mind. Thus it may be used as a subliminal route of communication with the brain. Improve the function of the body and you must improve the state of mind.

Despite a growing acceptance of such holistic systems of thought as relativity theory and the Oriental medical practices then filtering into the West, Feldenkrais's book proved too radical for its time. Consigned to the lunatic fringe, he returned to Palestine. There he worked in relative obscurity, supported by those he helped, among them David Ben-Gurion, whom he brought back to health while Ben-Gurion was in office. Word of his "miracle cures" spread through Europe, but it was 20 years before the holistic health movement brought him to North America, where his genius was quickly recognized by open-minded researchers, among them anthropologist Margaret Mead and Professor Karl Pribram, head of the Neuro-psychology Labs at Stanford University. "He's not just pushing muscles around," says Pribram. "He's changing things in the brain itself so that the patient can gradually adjust his whole muscular dysfunction to what we call a normal image. In the motor cortex there's a photographic image which I call an image of achievement. And it's that image which Feldenkrais transmits. He knows how it ought to be. He transmits the image and you organize your brain to meet it."

Feldenkrais once had a wife. She was a doctor. She wanted him to become one too. They were in London after the war. One of the medical schools there offered him two years of credit for his research.

"Wouldn't it have been easier for your work to gain acceptance if you had become an M.D.?" I asked.

He snorted. "My work wouldn't exist today if I had. If I had let all those highly intelligent people teach me their ideas for three years, I should have concluded my own were absurd. How could all of them be wrong?"

Feldenkrais is a national treasure in Israel. He lectures at the University of Tel Aviv, and he works there through the winter with a small group of teaching assistants who have studied with him for 15 to 20 years.

His American legacy will likely be the 63 students whose training he has just completed, except for three months of postgraduate work in San Francisco next summer. They are devotees. During their three-year training period, only three dropped out of the Feldenkrais program. It isn't difficult to understand why. The man is sometimes angry, generally impatient, and largely intolerant. But he is fascinating on a broad range of subjects and passionately dedicated to teaching people to help themselves--fools though they may be. His life is "the work." When I asked him about famous men, Paris in the thirties, wars, and Israel, he waved his hand at me and later remarked to someone: "That Fox just wants to write about me and Ben Gurion. He wants to write a social register." When I complained he said, "Look. Nothing is more important to me than the work I am doing. It is the work that deserves what space you have."

He did say one thing about Israel: "I hope it survives. It's the only place in the world where I don't feel like a Jew."

In San Francisco he worked from at least 8 a.m. until 8 p.m., seven days a week, teaching in the morning, giving private lessons in the afternoon and evening. Then there were the weekend seminars. He conducted four of these on the West Coast. The last was at the Fairmont Hotel in San Francisco. I went.

Most who seek Feldenkrais's treatment have no gross dysfunction but merely want to move better. Many are athletes, dancers, musicians, and others who rely on fine movement for a livelihood. For this majority he has developed a series of simple floor exercises called "Awareness Through Movement" (the title of his second book).

At the Fairmont, 300 of us lay on the floor of the grand ballroom and he taught us something of what we had known as babies and then forgotten: the easiest way to roll over and sit up. He sat on a dais above the rows of bodies, looking through one eye, cantankerously cajoling, instructing and berating us for our habitual stupidity.

"Lie on your backs." We did. "Think of what part of you you move first when you roll over on your side."I thought. I didn't know. I'd never thought of it before. I decided it was my head. "Roll over the way you usually do." he said. I was aware of the awkwardness of the movement the effort. There was little gravity to excuse me here.

"Lie on your backs," he commanded again. "Now bend the right leg and sweep the right arm across the floor until it is straight above your head and let your arm come across your body and the hand come flat to the floor on your right side . . ." and suddenly I was lost in the effortlessness of the movement. One led naturally to the next and I bobbed upright like a cork coming to the surface.

Looking around, I saw the same wide-eyed wonder that must have been on every face the first time any of us came upright in our cribs and discovered the vertical dimension. I will never forget the feeling. And if I now roll over another way, I feel that it is wrong (Feldenkrais teachers joke when they see a baby: "Look " they say, "it's doing Feldenkrais.")

We had just learned the meaning of what the old man calls "Aware Movement." It is the apogee of movement, a meditation. "Until you know what you are doing, you cannot do what you want " he

said as we lay on the Fairmont carpet. "Whether you do it right or not, until you know what you're doing you are not right. An athlete who hurts himself is not an athlete. He's a silly fool. Because you can't hurt yourself if you are doing the movement right. And if you're not, then you're not exercising choice, which is your prerogative. And most people," he went on, "never do. Most people go through their whole lives not knowing how to stand up properly. They can stand, so that's enough. They do everything just well enough to get by."

He was smartly attacked for being such a paradoxical figure himself: five feet seven inches tall, he weighs 190 pounds and chain-smokes. Unhesitatingly he said, "I'm just an average human being. What I've learned I've learned from experience and observation. If I were perfect, I wouldn't want you to listen to me, I'd only want you to admire me."

By the following afternoon he had taught us to stand. As I popped to my feet I wondered how many people this man had reawakened to an enthusiasm for themselves and their capabilities. I thought of the work's beauty, its universality, its ultimate simplicity and almost insulting obviousness. I thought of needless suffering that will continue. Of all the people who will be forced into casts, braces, wheelchairs, and asylums because of pride and ignorance. I thought of the inconceivable potential that lies within each of us in that substance Feldenkrais calls the rarest on earth: brain tissue. I thought of what Carl Sagan wrote: that the number of states in the brain is much greater than the total of elementary particles in the universe. I thought of how few people there are who contribute to the total of our knowledge. Here was one, sitting like a one-eyed Humpty Dumpty before us.

When he had finished working us he said, "Stand up. Notice how you feel. Do you feel different" There were murmurs of assent. "Do you like yourselves better that way? Good. Thank you very much."

He left the next morning to see Milton Erickson, the hypnotist, in Arizona. And then to Washington and New York to teach at the New School and then to London and then Paris to oversee the publication in French of his new book Nora.- A Case History and then to Geneva to see about illustrations for another book and then to Munich to begin a three-year course with 60 European doctors and then home to Tel Aviv.

He left me feeling not only better. but inspired. He left me a quarter of an inch taller and with friends remarking on how different I looked In the downward spiral engendered by a negative prognosis, I had become angered at and withdrawn from my body as though it were an ugly part of me. I was afraid to fail, afraid to fall. and rigid and falling from the fear of it. Now I was recovering function. I felt and saw the motor cortex being reconnected with my body. Feldenkrais didn't speak of a cure. "When people think of being cured" he said, "they think only of being as they were before. We don t go back. You can become a great deal better than you were before. It's up to you."

All I felt now was summed up in what he had told the class one morning: "The human nervous system is 90 percent concerned with recovery of stability," he said. "But life is not a stable process. Stability is for trees. For us, life is a process of risk and recovery. Each step we take is a risk. The ability to recover is our greatest quality. Stability? You have stability when you go to bed. And you keep risking, because one experience is not enough. If it were, then one glass of wine would be sufficient. One game won. One success."

I made plans for Christmas in Tel Aviv

10. THE FELDENKRAIS LESSONS: AWARENESS THROUGH MOVEMENT

Experience the joy of moving well
Taught by Bruce T. Holmes, Member of the Feldenkrais Guild

10.1. AN ALBUM SET OF 12 NINETY MINUTE CASSETTES

24 Forty-five Minute Sessions
The Haven Corporation, P.O. Box 1291, Evanston, Illinois 60204
Bruce T. Holmes, The Body Center, (312) 869-3434

Bruce T. Holmes is a teacher of the Feldenkrais Method, black belt Aikidoist, marathon runner, folk dance leader, and member of a performing dance troupe. He has a novel entitled Anvil of the Heart and gives workshops all across the country on the Feldenkrais Method and on the relationship between body awareness and self esteem.

Moshe Feldenkrais holds a D.Sc. in Physics from the Sorbonne. He was the first European to earn a black belt in judo and was found of the judo clubs of France. Over the last forty years (since the 1940s) he has become internationally known for his work in human consciousness and the body's motor apparatus. His books include Body and Mature Behaviour, Awareness Through Movement, and The Case of Nora.

"The Feldenkrais Lessons, a 12 cassette, 24 lesson series developed by Chicago based practitioner Bruce Holmes, is excellent. Consolidated from a course that Holmes conducts, this series is an actual workshop that you can do in your own home over a month's time. The course includes theory as well as exercise and moves at an easy to follow pace. The directions are clear and simple, the lessons fascinating and a pure joy to do. The series has our highest recommendation. "
New Age Magazine

The Feldenkrais Awareness Through Movement exercises are easy, non-critical, experiential lessons in how the body works and how to use yourself intelligently. They are designed to release the habitual movement patterns of your nervous system and suggest an improved functioning. The result is better posture, greater ease of movement, and increased flexibility in all aspects of life. The lessons are only done in the range of what is comfortable for each individual.

The program covers twenty-four Awareness Through Movement lessons plus a wealth of background material on the Feldenkrais approach and a variety of related subjects: shoes, running, posture, breathing, etc. The cassettes were edited down from nearly one hundred hours of high quality workshop recordings and they retain the humor and spontaneity of the live event.

Lesson Titles:

1. Introduction, STANDING, TURNING: SITTING TO STANDING I
2. FLEXORS
3. EXTENSORS; SPINE LIKE A CHAIN; Shoes
4. Posture, OSCILLATING
5. PELVIC CLOCK
6. HEEL CIRCLES
7. SHOULDER AND HIP CLOCKS
8. KNEES FALLING TO SIDE

9. STOMACH TO SITTING; review SPINE LIKE A CHAIN
10. LIFTING HIP -- HAND IN HEEL; HEAD FROM LOWER BACK
11. CONNECTING FEET AND HANDS
12. LIFTING ARM TOWARDS BACK
13. LENGTHENING THROUGH SPINE; SITTING TO STANDING II
14. BREATHING
15. STRETCHING SIDES; review PELVIC CLOCK
16. SNOW ANGLES; BABY ROLLING
17. SITTING TURNING; FEET
18. STROKING LEGS; Review
19. FREEING THE NECK
20. HAMSTRINGS AND HIP JOINTS
21. LIFTING FROM THE HEAD
22. THE FELDENKRAIS CRAWL
23. ROTATING FOOT; review SPINE LIKE A CHAIN
24. FOOT TO HEAD; Final Words

10.2. letters

Dear Bruce:

"For anyone hoping to understand and use Feldenkrais' work, the tapes by Bruce Holmes are a tremendous advantage. The material is concise, orderly, and represents the most effective method of learning the gentlest and most profound of movement therapies. "
Barrett L. Dorko, LPT
Falls Orthopedic Surgeons
Cuyahoga Falls, Ohio

"Incorporating Feldenkrais with yoga has increased my flexibility and improved my yoga postures. As I get more and more addicted to the Feldenkrais method, I find my yoga classes (and me!) changing greatly, with accelerated improvement for all of us. You did a wonderful job on the cassettes. Thank you."
Ruth Hetzel
Yoga Instructor--Self Awareness Center
Evansville, Indiana

"I have used them many times over and have recommended them to yoga students, teachers, bodywork therapists of all kinds--all of whom have similar results. The exercises produce results that take many more hours, days or even years of learning through other methods. I have listened to other Feldenkrais tapes and have found your instructions to be by far the clearest to follow while in keeping with the discovery principle so central to this process. Others lose me. Best Wishes."
Don Stapleton
Director of Education, Kripalu Center for Holistic Health
Director of Teacher Training, Kripalu Yoga Institute

Your tapes have meant so much to me, I decided I wanted to write to you.

I am now walking in a completely different manner. In the past, I was always afraid I might trip and fall; now, when I walk or move, I feel as though I'm floating.

This is such a precious gift for someone who has always thought of herself as awkward. I feel more graceful than I ever believed I could, and this has helped me relate to my world in a much more positive and happy way. The tapes are clear, well put together, and best of all, nonjudgemental and encouraging in tone. I'm very glad I own them. Thank you.
G.A., Evanston, Illinois

Being an active student and dancer, I seldom take time out to relax and concentrate on sensing my body. The Feldenkrais work has enabled me to rethink my body placement, breathing, and joint mobility--And I was able to bring these feelings into my dancing. I guess it reawakened my body awareness ....
W.L., Kitchener, Ontario

. . . I'm so happy that you undertook the tape project. I'm using them with much pleasure. Keep on sharing Moshe with your fellows.
H. C., Cedar Falls, Iowa

. . . they've shown me how to relax and ever since I've noticed that I never have pain in my lower back..
P.B., Ottawa, Ontario

. . . I'm able to define definite changes in my stature, my head stands taller, my back and neck straighter, and my shoulders aren't hunched up towards my head.
G.K., Kalamazoo, Michigan

Your tapes have helped me so very much. I have used them repeatedly & they are effective. Bruce, each time I play a tape of yours I 'hear' something additional--how do you do that? Strange, isn't it? Or is it?!
S.K., Battle Creek, Michigan

Have been using your cassettes of Feldenkrais Awareness Through Movement exercises and am writing you to tell you how excellent they are. Several years ago I attended a weekend workshop taught by Moshe Feldenkrais. Within two weeks of that experience I lost 30 lbs of weight and a further 20 lbs within 3 months. Although I had to purchase a complete new wardrobe to fit my body, the feeling of well-being and the change in my self image more than compensated for the cost. Your cassettes present the exercises most clearly and are easy to follow. The Convenience of being able to select an exercise and listen to it on my stereo equipment is most welcome. I wish you good luck with your program.
Yours sincerely,
R.M., Vancouver, British Columbia

. . . My body and I are moving and living in greater freedom, new strength, and super awareness from working with the cassettes. It's a bonus that I have them at this time in my life when such a thing is greatly needed by me. . .
B.K., Decatur, Illinois

I've been really amazed by how good (balanced, comfortable) my body has felt after doing even a single side of your tapes. When I was listening almost daily I felt good all the time. Now, whenever I feel the need I listen to one of the tapes and whatever stress or back pain I've been experiencing as a result of a limb length discrepancy and scoliosis leaves me. My body feels organized in a new

way it doesn't as a result of the other things I've tried--dance, Tai Chi, yoga. As a result, I've recommended the tapes to several friends and consider them a Godsend.
E.J., Chicago, Illinois

. . . The material is excellent--I feel the breaking of patterns of motion are really good. I have used it with people when I work. I find myself looking at patients differently....
G.D., Oak Park, Illinois

. . . I am thankful to have run across the material on the tapes--and keep up the good work. I am sure many, many people feel the same way--Blessings,
V. W.. Pine River. Minnesota

. . . I also ordered your tapes and have enjoyed them immensely. They were very well done. Thanks again & best wishes in your work. Sincerely,
P.S., Milwaukee, Wisconsin

My bursitis--which I have had for two years in my left shoulder is mostly gone--apparently due to doing these exercises. I find the relaxed quality of your voice, with the clarity of directions you give as part of the effectiveness which leaves me feeling more clear headed & in control of my body...
B.J., Denver, Colorado

. . . reconfirmed what I already knew, but did it very succinctly. As a teacher of dance, I had many ideas strengthened as to how to approach training dancers in a more direct manner.
Z.W., Toronto, Ontario

Apartment 307
2240 Midland Grove Road
Roseville, Minnesota 55113

August 26, 1980

Dear Bruce,

I was delighted to get your letter announcing the completion of two more tapes for the Feldenkrais lessons. I have been intending to write you to tell you about my experience with the tapes, and this prompts me to finally get to it.

I think that the entire set is terrific. I have been devoting an hour a day to the exercises for the last five or six months, and the results are fantastic.

Do you by any chance remember me well enough to recall that when you were in Minneapolis late in March of 1979 to give a one-day workshop, I took the workshop and then also had one individual session with you? I had a problem of numbness in the toes and ball of my right foot that had been getting progressively worse over a period of years (it started when I was about 53 years old and I am 63 now). You mentioned at the time that some of the exercises you used in the workshop, particularly the hip-foot-head circles, might help me if I would continue them.

I had done a few of the exercises periodically before the tapes came out, but not very consistently. By the time the tapes arrived, I had retired from my job at the University of Minnesota and had a lot more time to devote to taking care of m~vself. I listened to and followed the tapes, and discovered

that many of the exercises seemed to set off sensations in my right foot, particularly in the toes. So I set up a regular schedule of going through the tapes repeatedly (as I gradually began to remember the exercises I made some notes on them, so now I do them without the tapes most of the time) and I found that each time I went through them I got more "buzzing" action in my foot. I've now gone through the set about seven or eight times. Last time through, something seemed to let loose with a soft "snap" three different times in that foot.

The results seem to be that I am getting the feeling back in the toes and ball of the foot gradually. The toes on both feet are gradually spreading more and more. My posture has improved substantially -- chest lifted, head on straighter, stomach tighter -- and I get a kick out of people constantly telling me how young I look.

I certainly appreciate your producing the tapes. They are extremely well done: good timing, excellent voice, and a nice quiet relaxed quality that includes a little humor. I really enjoy listening to them, no matter how many times I hear them. You have done a great service for the Feldenkrais movement If you ever need an endorsement for any purpose, let me know.
Sincerely yours
Frank F. Pieper

11. Body Traps

from Body Traps: Breaking the Binds That Keep You from feeling good About Your Body, Judith Rodin, Ph.D. William Morrow. 1992, pp. 14-17

Our bodies have become the new coin of the realm. Appearance, good looks, and fitness are now the measure of our social worth. Not only is how we look suddenly incredibly important, but we have come to accept homogeneous images of beauty. We have become hypnotized by a quest for an impossible, celluloid-inspired perfection.

Painting and the arts, once the primary source of imagery for bodies, style, and appearance have been replaced in modern culture by television, movies, and magazines that sell glamour. The media now expose everyone to a single "right" look and the beauty industry promises that anyone can attain it if he or she buys enough, from makeup to makeovers. Standing at a newsstand and looking at the magazines tells it all. There are any number of magazines for both men and women emphasizing looks, style, beauty, hair, fashion, and an almost equivalent number for adolescents. There are even a few now for young children. Certainly in number they rival the newsstand sections on cars, mechanics, gardening--showing that how we look has become our most important "hobby." But it certainly isn't fun, the way hobbies should be. It is a tortured pursuit for most of us.

I just went to get my mail and it is loaded with catalogs. One doesn't even have to leave home now to shop for beauty. It is another part of the new technology that was never there before, making it seem so easy to look good that we feel anyone can and should do it. But the beautiful self we want isn't real. The beautiful people--the synthetic illusions created by the media--don't look that much better than we do when they wake up in the morning. Perhaps this is the ultimate trap. We are all casualties of the technology of the fabrication of looks and the dehumanization of spirit and individualism. Our goals are unrealistic and inhuman and we are creating and recreating ourselves to embody these goals.

It has become so fashionable, so politically correct to worry about the environment. We rally to plant trees to save the earth, we worry about oil spills, but do we realize how we are defacing and dehumanizing ourselves by chemical peels, dermabrasion, hair dye, synthetic diet foods, and artificial fats and sweeteners? Where is the concern for the human part of the environment? We are losing ourselves and not worrying about it.

I'll cover several Body Traps in this book. Most of them are debilitating or limiting in some way, and they can be changed by eliminating the ignorance that many of us share about our bodies. The designations are somewhat arbitrary and as you'll see, some of the traps can and do overlap.

11.1. The Vanity Trap We are accused of being, and feel ourselves to be, vain and conceited if we're concerned about how we look. But this view overlooks the deep psychological significance of the body. Of all the ways we experience ourselves, perhaps none is so primal as the sense of our own bodies. Our body image is at the very core of our identity. Our feelings about our bodies are woven into practically every aspect of our behavior. Our bodies are also critical to our identity because they are the form and substance of our persona to the outside world. Appearance will always be important because we are social beings. How we look sends messages, whether we want it to or not, and people respond to us accordingly.

We can blame the media for creating a single look--unattainable by most--the ideal. But we can't hold them responsible for the fact that our body image profoundly influences how we feel about ourselves. Despite the importance of body image, however, we get trapped because most of us lack adequate knowledge of how our body operates and have insufficient body awareness. The difficulties some of us have in figuring out how we feel and look can diminish our sense of who we are.

11.2. The Shame Trap Shame is closely related to the vanity trap. Worrying about how we look makes us feel guilty and ashamed. It seems silly compared to the world's pressing problems. But advertisements, television, movies, and our friends are always there to remind us of how we should look, even if we try to forget. At the very heart of the feeling of shame is the feeling that we've failed to live up to some ideal that we all value. Shame affects women and men, but in different ways. New findings presented here show that women feel ashamed of their bodies; men find their body concerns shameful. Some surprising consequences arise from this difference

11.3. The Competition Trap Physical attractiveness and weight are still the chief and most wholeheartedly sanctioned arenas in which women are encouraged to contend with each other. The ultimate contest--the beauty pageant--is still going strong. Women compete with one another for men, but their urge to be thin transcends even what they think men find attractive. Weight control, in particular, is laden with rewards for competing effectively. The challenge is sufficiently visible that it commands respect. The high chance of failure reinforces its importance. The competition trap is complicated further by the fact that concern, complaint, and worry about weight are also forms of bonding among women--a sort of friendship ritual. And women compete not only with one another, but with their own ideal self. When this drives them to become too perfectionistic, they often fall back on eating to relieve the stress.

11.4 The Food Trap Food is inextricably bound to all human activities. But with the fitness craze, *what* we eat has now taken on moral overtones--cholesterol is bad, fiber is good--and we feel correspondingly virtuous or guilty depending on what we consume. Different foods are strongly associated with feelings in other ways as well. Food is laden with symbolic meaning and is the most

widely used form of self-nurturance and self-medication. For all these reasons, favorite foods are hard to give up. Yet, we are made to do so in our quest for more perfect bodies.

11.5. The Dieting-Rituals Trap Dieting has become a ritual. It means much more than losing weight. It's a spring cleaning, a new slate, a fresh beginning. It also holds the promise of rejuvenation. That's why it's so hard to give up. But restrictive dieting may be one of the worst forms of weight control. In fact, it may be one of the major causes of weight gain and disordered eating. And our genes have a much greater influence on our body shape and size than our dieting efforts, which leaves some people caught fruitlessly in the wrong battles and others attempting the impossible. Yet, society treats dieting as if it were equally easy for all, creating still another aspect of this body trap.

11.6. The Fitness Trap The benefits of exercise are real. It improves mood and helps to maintain health. But you can have too much of a good thing. In the case of exercise, too much may be worse than none at all. There are also other health risks, including heightened weight preoccupation and even eating disorders, which are associated with intensive athletic pursuits for many. Exercise is increasingly viewed as morally right, an attitude that ironically encourages harmful excess.

11.7. The Success Trap Success at weight control and looking good is the brass ring, the final reward for many. But, surprisingly achieving it may lead to unhappiness for some rather than joy. Many people feel like frauds because of the enormous time and money it takes to look good. Maintaining their false self puts them under chronic and intense stress. And few develop the confidence that they can sustain the success. Another part of this trap arises for those who hoped their lives would be transformed by success. Often these very expectations set them up for failure. Success also sometimes threatens close relationships, or changes other parts of our lives in ways that are frightening.