



DELTA LIFE SKILLSsm

EMOTIONAL FREEDOM IS IN YOUR HANDS with EFPsm

Integral Energy Psychology

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RADIANT ENERGIES BALANCE (REB)sm:

Energy/Information and Body/Somatic psychotherapies integrated using a flexible and comprehensive therapeutic and transformative protocol

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with Janet Nestor, M.A., L.P.C. and Master REBsm Practitioner***

PART ONE: THE RADIANT ENERGIES BALANCE (REB)sm PROTOCOL: PHILOSOPHY/RESEARCH/THEORY BACKGROUND©

(Dear reader: part one is very much in process. It consists of a collection of articles and excerpts, written by others and my self, on a variety of topics related to energy/information psychology. The extensive quotations used are indicated by "..." in the text. The more technical sections on quantum theory are just beginning and have not been translated into intelligent lay person's language).

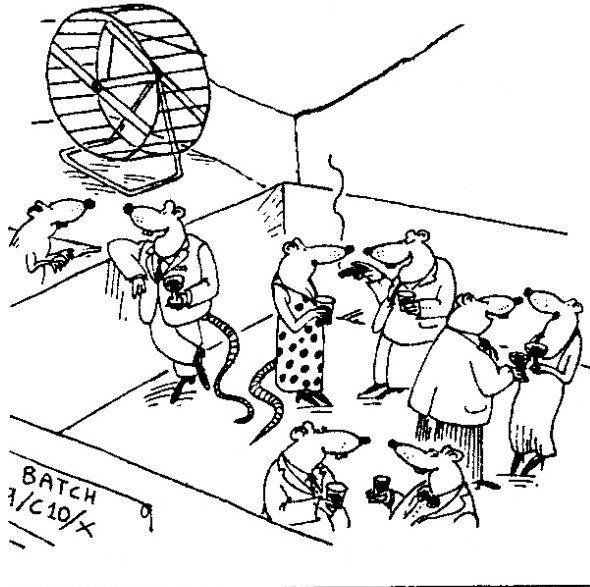
See separate documents for:

AN "ACTIVE INGREDIENTS "ANALYSIS OF THE RADIANT ENERGIES BALANCE (REB)sm PROTOCOL©

PART TWO: THE RADIANT ENERGIES BALANCE (REB)sm CLINICAL PROTOCOL INSTRUCTIONS©

PART THREE: ADDITIONAL APPROACHES, OTHER PRACTITIONERS' USES OF THE RADIANT ENERGIES BALANCE (REB)sm PROTOCOL, AND RESOURCES FOR "THE ART OF DELIVERY"©

HEALING ARTS CENTER



**"Now this is what I call
psychological research."**

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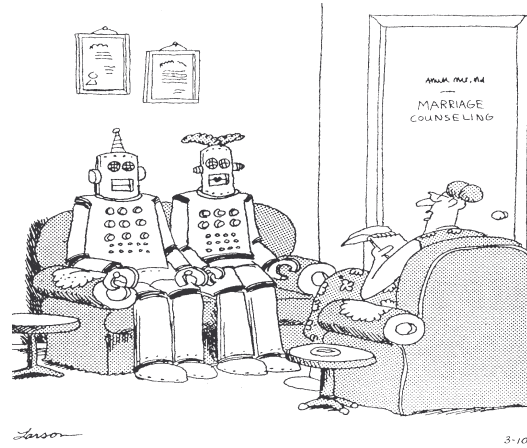
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24. The range of reality: multidimensional human existence and its many energy/information layers
24. Summary of some of the balancing protocol assumptions and an estimate of the degree of evidential support for them (high, medium, low ala Dan Benor's method of evaluation of research support)



The problem, as I see it, is that you both are extremely adept at pushing each other's buttons.

1. A BRIEF HISTORY OF MY (PWW) DEVELOPMENT OF THE RADIANT ENERGIES BALANCE (REB)SM PROTOCOL

My (PWW) approach involves using Eden and Feinstein's "radiant circuits" of the body's energy system (meridians and chakras) to balance both the body/mind and spirit realms. I see this approach as a bridge between these realms of human functioning. This can be conceptualized as bridging between Ken Wilber's Upper Left Quadrant ("I"-Interior-Subjective-Individual-Intentional) and the Upper Right quadrant ("It"-Exterior-Objective-Individual-Behavioural) approaches. The whole "neurotheology" and "quantum theory of consciousness" movements (UR quadrant), while very interesting, is mainly stuck in 19th century materialistic metaphysic and so miss the boat and attempts to reduce human functioning to the "flatland" of materialistic reductionism (Wilber's metaphor). The Scientific American special edition titled "The Hidden Mind" (2002, v. 12, #1) has articles written from this standpoint. Only the concluding article by Chalmers (p. 90 ff) questions this materialistic reductionism assumption by stating "...knowledge of the brain alone may not get to the bottom of ...[the puzzle of conscious experience]."

I first got real interested in Callahan's concept of "therapeutic formulas" as an approach to the People's Radical Release Therapy which I describe as follows:

- ** "People's" since only brief training is needed and you don't need an advanced degree to use it in its basic form.
- ** "Radical Release" since the methods provide rapid Release for distress at its source (the original meaning of "radical"), you can use them practically anywhere (not just in a special setting/office/clinic), and finally, they don't require any medicinals or special equipment beyond your hands.
- ** "Therapy" since you eliminate the source of "psycho-physical-spiritual-garbage" and begin to follow your heart wisdom. What more could be required for the ultimate in a life skill?!!

I've been looking for this since 1951 when the Dianetics movement first came out. Like many who explored Callahan's "Five Minuet Phobia Cure," I had great fun and success as I demonstrated its power in my psychology classes. I literally did have people rid themselves of troubling stuck emotions within minutes in front of the class using the basic algorithms. I knew that this was indeed what I had been looking for all these years. However as I used the original algorithms again and again I, along with many and others, began to question the specific order and other aspects of meridian therapies and when the number of algorithms began to expand beyond reasonable limits for "do it yourself" approaches I began questioning the whole idea of set formulae. Then there was the whole "tapping thing" problem which began to surface more and more. Clients and counselors expressed reluctance to use tapping in public because it looked strange. So I looked at TAB (Touch And Breathe) and RAB (Rub And Breathe) alternative meridian point stimulation methods which people could do without feeling embarrassed and noticed. Then I started to question the elegance of stimulating each meridian individually and looked for approaches that would combine a balance in much fewer points/spots. The whole issue of diagnostics didn't fit with my "do it yourself" approach since most people, even if they know about energy/information psychology etc., won't be skilled in figuring out what meridian/chakra needs balancing.

While attending an energy psychology conference in the spring of 2001, I had an epiphany: I discovered that Donna Eden's Radiant Circuits were the most efficient way to work with the body's energy system. With my colleague, Janet Nestor, I spent the next 3 years researching, developing and refining the Radiant Energies BalanceSM protocol (the official website, www.rebprotocol.net, probes a wide range of clinical, neurological, philosophical, and empirical issues). The protocol can be used as both a sophisticated professional therapeutic system incorporating main stream and cutting edge therapeutic methods as well as an easy to use self help technique. It's one of the most user friendly approaches in the field of energy psychotherapy.

Thus, when I discovered Donna Eden's "radiant circuits" and triple warmer/spleen hook up posture I said: "This is the simplest and most elegant protocol of all." Thus, I started researching/developing my Radiant Energies Balance (REB)SM in the Summer of 2001 after training at the Energy Psychology Convention International at a workshop conducted by Stephanie Eldringhoff and Wayne McCleskey of Rapid Relief from Stress and Distress, Website: www.rapidrelief.com. I've sent earlier versions of this protocol with it's research/theory background to many people for feedback and have established the category of "supporting practitioner/developer" (ala the TV/movie awards category "Best supporting blah blah..."). I was blessed with creative, enthusiastic, skillful, and brilliant "supporting practitioner/developers" who have contributed greatly to the

research and practice of the Radiant Energies Balance (REB)sm protocol. My development philosophy uses the Linux operating system development model where you put out methods and they get tried and refined and then the new refinement gets posted out there etc. This is in contrast to the Microsoft model of monopoly. The down side is the Linux model doesn't generate great wealth, just great health.

When I read Eden's description of the function of the Triple Warmer and Spleen meridians I said: "Hey, that's basically the sympathetic and parasympathetic branches of the autonomic nervous system!" Thus, I originally created the Radiant Energies Balance (REB)sm for balancing the Autonomic Nervous System using the Radiant Circuits. I now look at it as a very powerful empirically based "asana" since it engages the radiant circuits (Eden calls them "Energies of Joy") and facilitates the transition between physical and spiritual realms, an actual transformation implementing Wilber's transcend and include model in a practical simple manner.

If you go to the various "Organized Skeptics" (see Leiter, 2002 "The pathology of organized skepticism") and quackbuster web sites and read about energy/information psychology, you'll notice that anything that violates 19th century western materialistic metaphysics gets soundly hammered. They routinely discount or denigrate 4000-5000 years of clinical research involving careful observations of efficacy (now called evidence based medicine) in cultures that don't have this particular brand of metaphysics. (Hufford, 1996; Kiene, 1996a&b; Kline and von Schön-Angerer, 1998) The incredible arrogance of these self proclaimed "right men" types continues to astound me and most are in the academic and university settings (so called higher education). One of the pioneers of quantum physics in the early 20th century made the comment that physics progresses funeral by funeral. To get a feeling for the thinking of these people read Larry Dossey (1998) "The right man syndrome: Skepticism and alternative medicine" and Robert Anton Wilson (1986/1991) The New Inquisition: Irrational Rationalism and the Citadel of Science. Wilson calls them "Fundamentalist Materialists."

I don't think the fate of energy/information therapies will be "funeral by funeral" given the access to alternatives on the internet and the savvy that clients now have. The medical profession in north America did not take any interest in CAM (complementary/alternative medicine) until they realized their patients were into it in a big way and paying for it out of pocket. The same will happen, I think, for psychotherapy. At least that's my hope. That's why I push methods that will be used by people in their daily lives anywhere, anytime without feeling foolish. I encourage counselors etc. to check it out but usually they have no interest. They have their method and aren't particularly interested any thing different. Maybe if clients ask why they don't use some form of energy/information therapy, they might question their Belief System (abbreviated BS) and take a look out of their professional reality tunnel (Wilson, 1986/91). The "Psychology Industry" is under the gun by psychologist Tana Dineen (1996). I look at energy/information psychology etc. as the ultimate complementary and adjunctive approach in that using it will make practically any other technique work better.

I stopped using tapping or TABing etc. since it's too piecemeal and random (you tap on all to hit the right ones) and the use of diagnostics is usually too invasive and cumbersome for my tastes. I now almost exclusively use the Triple Warmer/Spleen balance posture for the Autonomic Nervous System. The person can sit there at any time and stop in the posture and let things settle down rather rapidly. It may be necessary to stop for a day or so to let the system adjust. Using the posture to

complete what came up in the session (i.e., review the session's effects) is very effective and speeds up the balance process. The use of this posture involves the whole energy system in one simple elegant pose via the Radiant Circuits. No more second guessing or random tapping or diagnostics. The assumption is that the energy system knows what it needs and the Radiant Circuits know how to give the system what it needs to balance for the issue. The practitioner just acts as a gentle guide or coach (I'm more and more using the coaching model when thinking about these techniques and refer to my roll as a "Healper" or Healing Helper).

In general my philosophy of science is best expressed by Larry Dossey (Hibbard, et al, 2002, p. 9) "I've never had an epiphany. I don't see auras, I don't channel, and I'm not a healer. In spite of this, I have an abiding sense of the spiritual dimension in my life. It simply doesn't conform to the popular descriptions about how you're supposed to get from point A to point B. I happen to believe in something that's out of favor, I think science itself is sacred, and that's been a spiritual path for me...Robert Boyle considered science so sacred that he recommended that scientists conduct their experiments on Sundays as part of their Sabbath worship...Jacob Needleman, in his book *A sense of the Cosmos*, said that the first generation of scientists wanted to have an unmediated confrontation with reality [basically a mystical encounter]. Thus they went to 'the wall of truth' via science wishing to know first-hand how the universe operated...[T]here was a huge mystical and spiritual element in how science was originally conceived. But...within a couple of generations this tradition was lost as science became authoritarian..." (underlining added) (see Horgan, 2003)

Also, I have been fascinated and attracted to the anomalous cases in research, the subjects that don't confirm the hypothesis and contribute to "error variance." As well, I've been curious about and wishing to explore the unexplained, the new and often outrageous in the field of psychology (see the Dianetics reference above). An outstanding source for scientific anomalies, things which challenge reigning paradigms, see William R. Corliss' "Source Book" project which has published 36 books on anomalies. (Corliss, 2002) The article is published in the Journal of Scientific Exploration, whose mandate is to publish peer reviewed material that mainstream journals will reject. I find it odd that such a journal is necessary in science since I thought that science was about exploration. But alas, science and universities are now greatly concerned with "defending the faith" much like the medieval church was many years ago.

2. MY (PWW) EXPERIENCES WITH EMOTIONAL FREEDOM PROCESSES (EFPs) AND THE RADIANT ENERGIES BALANCESM PROTOCOL

2.1 TRAUMA ELIMINATION USING ONLY WRITTEN INSTRUCTIONS FOR CALLAHAN'S TRAUMA ALGORITHM

A very dramatic example of the power of the meridian tapping method (early Callahan Techniques version) comes from the description of the results from a client who received my instructions in the mail with no oral/verbal coaching by me; she just followed written directions. This method was used due to the extreme distance involved (large time zone difference and expense of phone calls. Email was not an option at the time.) The first set of procedures she used was Dr. Roger Callahan's Trauma Algorithm. With persistence, she was able to eliminate this set of traumas as well as use the other Callahan algorithms for other problems as needed. Subsequently I sent her other Emotional Freedom Processes (EFPs) related to TFT.

I quote her description (*in italics*) at length using the original hand written copy available from the author. She is a bright divorced woman about 50+ years at the time (Reports are in letters from 1997 to 1999). The report is edited [in brackets] to protect the client from her ex husband. My comments are in { }. Her ex-husband while married played "mind games" similar to those in the movie "Gas Light," trying to shake her sanity.

1997 May 3 Statement (from "Meridian Tapping Record" form [now called "Emotional Freedom Processes (EFP) Record"])

Description of the nature, triggers and circumstances of the problem: Unwanted vivid memories of [prior] episodes with ex-husband's [many] months of psychological games designed to (to quote family doctor) "drive [me] to insanity and divorce." Triggers are anything which reminds me of that time -- something on T.V. perhaps. Once I begin remembering a specific episode I cannot stop the "film" until I've gone through everything that was said or happened. I feel as I felt at that time -- like a mouse circling a small cage in panic. Also a sort of torn apart feeling...

Comments on post session feelings: The blocking off of old emotions lasted about a week from that one session. When it did creep back it was very mild and easily corrected by a tapping session. [Because of family gatherings] I expect to be seeing [my ex-husband] once in a while and hope to have strength enough for this face to face reality check. Now that would mean I was cured.

Expanded comments beyond the "Meridian Tapping Record" form: ... Here's my experience in detail....

I did not really think these procedures would work for me but I decided to try. {A classic reaction}. First I read all the material carefully and made out my own "cheat sheet" with the specific instructions for PTSD and the psychological reversal corrections. I had [my current husband] read them to me as I practiced some dry runs. I had a problem with accessing my issue-related feelings on cue. Could only get up to a "3" {using a 1 to 10 Subjective Unit of Distress/SUD scale} rating and did not notice much difference at the end.

However when a "real" episode took hold of me I went off by myself, and threw the whole bag of tricks on it. This time I could tell it was really working. I felt like I was battling the old demons with strong ammunition. My taps got more aggressive as my feelings threatened to overwhelm me, and when I felt the bad stuff get stronger I switched often to the psychological reversal strategies with positive talk which in retrospect seems wildly excessive. It seemed necessary at the time.

I have no idea how long I was involved in this but I sure knew when I was finished. I felt dazed and sort of empty for a few minutes. Then collected my wits enough to turn my thoughts to my issue -- dredged up some bad memories. It was like a giant billboard or something slammed up to block the emotions. It said "This is only an event" i.e., without any emotional baggage attached (like the second world war was an event). This was an astounding moment!

I couldn't believe that this stuff was really gone!! I got out my old journals from that time and read a few pages as this always brings on terrible stress. I read on and on with serene objectivity. Wondered why I had written so much about how I felt as it now seemed unimportant. Felt more facts should be included. One very positive thing happened with this reading. I can now access

clearly [my children's] feelings and problems at that time. Used to be blotted out by overwhelming personal emotions.

1997 June 30 Statement (in a letter)

Thank you ... again for your help in my mental crisis. I realize now that this has been an inevitable outcome of my horrible months at the end of the [ex-husband] relationship. For so many years I was just holding all together because I had [my children] to look after. When [they were independent] I starting taking care of other people I notice in my journal that since Christmas I've been dealing with [those horrible months] in a direct way finally, and actually making some progress with the stuff. Then came my two [ex-husband] related events, combined with some present stuff that sent me into all the PTS {Post Traumatic Stress} symptoms plus a generalized 24 hour a day anxiety. What I didn't tell you [was about new problems family members here are having]...

The meridian tapping procedure really saved me mentally. I was at the exact point in my life when chucking past garbage was not only appropriate but essential if I was going to deal with the present problems. I am almost completely disconnected with bad emotions concerning that time. [Recently, I attended community event and] it happened that I came in the same entrance at the same time as [my ex-husband], and I did not feel that horrible stab of terror. Just felt recognition and nothing else. It was as if he were a person from some other lifetime.

I now realize from reading my old journal that [my ex-husband] was not only targeting me with crazy-making behavior but also targeting [our children]....he targeted me only when children were not present. When they were present they were part of the drama; they were used.

1997 July 10 Statement (in a letter)

Just a line to let you know that things are progressing ...

Also I have seen a therapist myself. ...[She] is a terrific help. With [background] information as a framework she was able to whisk me from childhood problems to [my current husband's] problem in one session. Told me I had a very strong "symbolic" stage (?) which agreed with my usual confidence in my inner core of tranquility. She tagged various problems in my childhood as affecting me in adult life and I could see that her observations were accurate...

One interesting phenomenon was that in therapy session when I mentioned the [many] months of hell with [my ex-husband] I started to cry. Sadness has never happened before in my recollections of this. Therapist felt this was a good thing, a progression. I told her about [the] tapping procedures, as they would be responsible for this emotional surprise. She was very interested and wants me to photocopy the information for her.

Without [your] help in eradicating the past garbage, I would have been swamped by this latest thing. I know that.

1997 December 6 Statement (in a letter)

Have been reading some self improvement books. I was so impressed with the meridian tapping results that I am pursuing other similar avenues...Also reading for spiritual insights. The two seem to go together.

1997 December 8 Statement (same letter)

I think my new interest in self-help and spirituality is all due to [the] meridian tapping therapy. Before I let go of all that garbage all my energies went to just keeping my head above water. In a way all that negative stuff now is useful in that it deepened and broadened my experience and brought me to seeing that I need some self development, etc. If I can only convince myself that "I'm worth it." Anyhow -- tell me what to read. I'm ready to go.

1998 July 16 Statement

I used the tapping therapy again recently to banish my free-floating anxiety and it worked very well. I think this anxiety is partly about being alone and partly about [my ex-husband] encounters. I did notice one eye position which was stress producing and worked on it.

I had a very successful (compared to the [earlier] episode) encounter with [my ex-husband] during [a family get together]...I decided to enjoy the day and focus on [others]; also to think of about [my ex-husband] as an unwanted thought intruding on a meditation -- just let him float through my consciousness whenever he happened by and then forget about him. This worked so well that I did not use my back up plan of doing the Freeze Frame {a technique from the HeartMath Institute}. So you see all these things are working very well for me. I really revel in this. Used to have a fixed idea that doing anything for myself was somehow wrong. Stupid, hey?

Now I find I am also more interested in buying clothes I love, doing things to house "just to make my self happy." Need used to be my only prerogative. I find [I can ask for money] but I used to ask only when disaster loomed {the Pschoenergetic/Polarity Reversal--self-sabotage has been eliminated!!} ...Reading this over I notice I forgot to mention that current anxieties are not PTSD. That has been banished from my life by the tapping therapy. Never think of the past at all in that regard. Could that be why I have more anxiety about [my ex-husband's] present escapades?...Quite sure I'll be fine anyway. Merely enjoying therapy.

1998 October 26 Statement (in a letter)

I am working on [the] new Tapping [instructions] etc. [I sent her an expanded version of corrections including the "Body/Mind Tune Up" which provides a variety of simple do-it-yourself specialized kinesiology techniques from a number of sources. See Part 3 for a description. As well I sent her a copy of the trauma cases video from Garry Craig's Emotional Freedom Technique/EFT course to better demonstrate the concept of "Aspects"}. I've always liked the [collar bone] breathing activity even though it was not part of my PTSD routine. The "Body/Mind Tune Up" routines are good for sorting myself out in the morning.

1999 January 6 Statement (in a letter)

Going thru my tapping regularly and what is coming up now is that "I blame myself for choosing [my ex and current husbands]. When it was only [my ex husband] I would believe it was all his fault, but when [my current husband] threatened...me I felt I was seriously flawed in making these choices of husbands....the emotional quality of my response to all this has significantly lessened. The meditation and spiritual reading builds up my flagging self-esteem.

1999 September 16/18 (in a letter)

Must add...some details of my progress with "releasing to a Higher Power." I do TAB [Touch And Breath] pressure with rubbing in tiny circles. As I "release" the various emotions they are also coming up and I almost feel the black sludge of stuff moving from various parts of my body up and out thru the crown of my head. I was amazed at how much "pain" this was. As I rubbed the iw-lfs [inside wrist-little finger side] spot I felt it necessary to massage the stress release points on my forehead with my free hand. That seemed to help the pain I felt as it all passed through. Same with "guilt." After "releasing" each spot I felt it necessary to say "thank you for accepting all this pain" etc. as I TABed. Did use word "replacing" as I did step 14 [of the Rapidly Integrated Transformation Technique (RITT)]. Then I hold the stress release points as I ran thru some eye movements, counting and humming.

I felt so exhausted -- but relaxed and exhausted instead of my recent usual toxic anxiety. I had to give up on the tree image, and the breathing work that should accompany the TAB, as the image of sludge moving from all over my body and out the crown was overwhelming... End of quotes.

A big advantage of these procedures are they can take place in informal (no office) settings; since the system is so simple it can be done almost anywhere; all that is required is that the person must be able to focus on (tune into) the problem without disturbance. No special setting or equipment is required. It can be done over the phone as long as you get the person to tap and rub the correct places. And it can be done by the person as long as they follow the directions provided, as indicated by the above case study.

2.2. MY (PWW) EXPERIENCES WITH THE RADIANT ENERGIES BALANCESM PROTOCOL

While attending an energy psychology conference in the spring of 2001, I had an epiphany: I discovered that Donna Eden's Radiant Circuits were the most efficient way to work with the body's energy system. With my colleague, Janet Nestor, I spent the next 3 years researching, developing and refining the Radiant Energies BalanceSM protocol (the official website, <www.rebprotocol.net>, probes a wide range of clinical, neurological, philosophical, and empirical issues). The protocol can be used as both a sophisticated professional therapeutic system incorporating main stream and cutting edge therapeutic methods as well as an easy to use self help technique. It's one of the most user friendly approaches in the field of energy psychotherapy.

Thus, in 2001 May I first used the Radiant Energies Balance or REBSM (triple warmer/spleen balancing posture described in Part 2) to eliminate a bug phobia for a relative. I had just learned this technique at the 2001 Energy Psychology Convention International at a workshop conducted by Stephanie Eldringhoff and Wayne McCleskey. This very brief therapy session produced a lasting change in a life long problem according to the report given me by someone who knows this person

very well. Interestingly, the person who received the benefit doesn't seem to acknowledge it since the change is so dramatic and contrary to the life of extreme bug avoidance; a typical "Apex Problem" or "Cognitive Dissonance" phenomenon.

My next use was with allergy/sensitivity type reactions with equally rapid and permanent results. Then I used Radiant Energies Balance (REB)sm with a client who's energy/muscle testing was frozen due to the amount of charge on the issues. Thus, I said "Let's take the edge off of the issue(s) so we can get an accurate energy test response." Well, we started to delve into the various aspects as they came up while the client held the posture. Aspect after aspect came up and then dissolved. Thus, the only energy technique I used was the posture. In another case, I used this procedure to eliminate the residual effects of trauma from about four years prior. Here I found that some parts of the person wanted to hold on to a bit of the emotional upset from the trauma so I used the head/eye procedures described in module 6 to locate and eliminate this residual.

Next (2001 September), I used it for a person's ongoing stress and trauma from serious family problems. In this case, a specific eye position brought up another significant aspect which in turn provided the key for the Module 7 Desired Outcome and "heartfelt emotion" induction. An interesting side event happened with her rather neurotic/nervous dog. I did a surrogate balance with the posture sending a message of calmness and peace to the dog. Very soon, the dog stopped barking and pacing, laid down and went to sleep; quite a change from its usual behaviour!. Later, while I was coaching this person in the balancing process, my wife tried the same thing for the dog but her message was "to lay down" without the calming intention. The result was much less dramatic. This demonstrates the importance of the correct focus and intention to obtain the desired outcome.

My next use was 2001 Oct 27 and Nov 3. During a break at my workshop, one student couldn't move her eyes as is recommended in step 6 (a problem she had since childhood and diagnosed when she was in grade 11 but no help given; about 20+ years). She wanted to be able to do this since she couldn't get a drivers license. So I said "Sure, let's clear that up." Because this was a class, I was concerned about getting in too deep. Little did I know that I was going to do my first "exorcism!" In order to speed things up, I did Frontal/Occipital holding as I coached her through the steps.

As I had her go back to grade 11 and do a multi-sensory review of the situation (step 5). I asked what images and feelings surfaced. She contacted the image of a man whose eyes, she said, were like "black holes." I asked for feeling and she said fear/terror at a SUDs (Subjective Unit of Distress) level of 10+. It turned out that this image/man had been haunting her all these years. She felt somewhat possessed and haunted by this image. Well, we worked for about an hour on this image. I used the typical NLP technique of manipulating the image and emphasized that it WAS an image that was controlling her. The image manipulation technique demonstrates to the client that they have control over it. I had her move it away from her until the SUDs was 0 and then gradually move it closer, always keeping the SUDs 0. When she was able to have the image "in her face" without any distress I asked her to take a deep breath (which she could not do) and literally blow it away as a puff of fluff. After several tries, she did a couple of small puffs and it was out. At this point, she took her first deep belly breath. Then we went to step 7 and started to bring in positive feelings and choice including HeartMath's core heart feelings. I made a suggestion that her healing sources would begin to replace the negative affect with the positive feelings which we listed and we

listed them all again including the ones she particularly desired. Then, as the class continued, we stopped a couple of times and asked her to check in as to her progress; % completion of substituting positive for the vacuum of negative affects. It went from 60% to 90% complete by the end of the class.

The next week's session (Nov 3) she expressed how much better, lighter etc. she felt but said "It's about half done." Turns out her ex boyfriend was an out-of-control psychopath type who frightened her to death until she escaped. Well ridding her of this image took another 45 mins or so. I, again, was doing frontal/occipital holding throughout to speed things up. The interesting thing about this is my discovery that she spontaneously engaged both of her triple warmer sedating points rather than doing the hookup of triple warmer/spleen. Apparently, there was so much fear stuck in her system that she needed a double dose of calming. Another discovery was that she broke out of the posture and asked to hold the hand of one of the students to complete the balance.

At any rate, we have a new technique "Hand Holding Therapy!!" The lesson here is go with what the person desires to deal with the issue. Don't get hung up on the method. As they say in Educational Kinesiology, for a given individual, "anything CAN balance anything" and you need to discover and allow this to take place; not blindly follow a "technique."

Next Case was 2001 Nov 17. This 40 year old (or so) female was born out of wed lock to Catholic parents who, from that time on, treated her as if she didn't exist. She felt her brother and sister also treated her like this as well. The only time she felt any family recognition is when they needed a scape goat. Thus she experienced a life time of rejection and hassling from her family. The SUDs on this mess from 'the gang of 4' (as we called it towards the end) was off the scale. I worked on her for about 1 hr and 45 mins after my class on the basics of Donna Eden's system.

A 2002 January 23 email from her stated [slightly edited for clarity and correctness]: "I wanted to let you know that I finally had the release we had been working on in class. My spirits have picked up towards my family. I can't explain it. I was reading something about handling a situation with another person and letting them save face, (about two weeks ago January). It was about how not to back a person up in a corner during a conflict and all of a sudden the release happened. It felt like a pop. I thought it was too good to be true but here I am and the emotional mass is still gone. I had been carrying it for 37 years. I wanted to share my win with you, and to thank you again for all of your help and teachings. I sent my family condolence cards with words of love and forgiving for my part in the conflicts. Something I couldn't have done before the release. Phil what I realize is that my behavior is what counts not theirs. I hope this makes sense to you. I will be working on my next layer and handle my constant worrying behavior. If you have any advice I would be willing to hear it. Thanks take care." I responded "Thanks very much for the feedback. With long term issues, it may take the system a while to process the change." Many times the Emotional Freedom Processes results create a context for continued growth but rarely do those who benefit actually recognize the source or their growth. This is frustrating for those who use EFPs but get used to it!!

My response to her request for help with "my constant worrying behavior. If you have any advice I would be willing to hear it." The best way to start is take a big worry area and take the charge out of it. Then the next one and so on. Since there's a generalization effect you may only have to do this 2 or 3 times for all the worry thing to be gone. Follow the protocol and make sure you substitute the goal/positive stuff at the end.... I'll coach you over the phone if you like."

3. EXPERIENCES FROM OTHER PRACTITIONERS WITH THE BALANCING PROTOCOL (emails)

2001 Aug 10 (using early instructions): "Thank you so much for sharing this information. I shall primarily be using it on myself, as my work at the moment is all by telephone, but I am aiming to work with some one-to-one clients soon, but I shall feed back when I have anything useful to tell you. I tried it today, but will have to put it on tape, and have to admit that the eye movements part made me feel quite ill, and in the concentration, I kept forgetting to keep my tongue just behind my upper front teeth, and then I felt a bit hot and not well, so I slowed everything down abit. But as I say, when I can follow instructions from a tape, I'm sure this will be easier! Thanks once again, Love & Light, V...USA"

2001 Aug 16 (using early instructions): "... with the other article you sent on the Radiant Energies, it began to make even more sense to me as I re-read it today, and while I was reading, I just decided to sit in the hook-up pose of one hand on my elbow and my other hand under the breast and curved around, and after about a minute on both sides, I experienced a definite change in my feelings! It was very cool! I felt an inner joy and elated, yet peaceful, feeling, and it was really nice! :) L...UK"

2001 Sep 19 (using early instructions): "I have used your procedure on 8 clients and found the results excellent. My last client with a extreme cat phobia dating back as long as she can remember, found that very strong physical feelings came on almost immediately (back ache and headache) within minutes of starting the processes. We only got through the centre head position. Because of these physical feelings we stayed with that position to clear the pain which, even through we were only trying to watch it, moved between the two points (head and back) and it took 20 mins for them to recede. After the treatment she floated out; but my question is: is this a regular occurrence for moving pain and is there any other way to clear it quicker (used all techniques in info you sent me). Have ordered Donna Eden's book for more info and background information. Look forward to your response S...UK" I, PWW, responded with suggestions.

2001 Oct 13 (using October instructions): "Thanks for the new instructions; look forward to reading them. Regarding this client [mentioned in the Sep 19 post] (found many more as well now) the pains came in her back and neck and I decided to focus on them just like an emotion and watch them go. The pains were traveling up and down her whole spine and back and after chasing them around she had a regressive memory appear in her mind. She explained to me that she now could not breath. I asked her were she was she said she was in a pram and became aware of being a baby and the found that the cat was sitting on her. We let all the emotions and pain out and when she came back for the next session she had spent all week with her daughters cats letting them sit on her and she loved stroking them. All her family were totally amazed as she has never touched a cat in her life and in the final year could not even leave the house if there was a cat on the street. I have since tried to work further with this. If you would like me to explain in any further detail please let me know. I have found that, with my clients who were only able to work with one eye position per session (very slow as 8 to 12 different feelings stored) this has helped speed it up. (later that day post): Forget to tell you more info on the cat phobia lady; while treating her she was having tests at the hospital for her high blood pressure which she had had for many years. She went back in between the treatments and they were all staggered to find that she no longer has any high blood

pressure whatsoever. I felt this was showing me the mind body link and I am continuing to investigate this. S...UK"

2001 Oct 17 (using October instructions): "Thank you so much for all of the valuable information that you have sent. It is a wonderful body of work and I do have 2 patients who can benefit from balancing and from the information regarding trauma. I have no problem at all giving you credit for your work and I will be in contact as to the outcome. By the way, I am a mental health counselor who uses a lot of energy work in my practice...My client ... has been struggling very painfully for 20 years. She talks about living in a fog all of the time, being disconnected from her spirit self, feeling helpless to make any real movement in her life. She still is not really in touch emotionally with a lot of the trauma of her early life etc. I don't know if it necessary for her to be in conscious contact with all of it, but it is necessary to increase the functioning of her energy system...since we know from trying to use muscle testing ...that she is not always connected.....that often the muscle testing reads out false. I am looking forward to trying this technique...and if we make some real strides you will hear the cheers all the way from North Carolina....I will be in touch. Blessings and much thanks for your generous sharing....J USA"

2001 Oct 20 (using October instructions): "My client ...responded very well to this process...a lot of thoughts and feelings seemed to take focus for her...and the images were very profound and meaningful. When we did the matrix [of head/eye positions], she seemed to have a physical sensation in her stomach that she described as a sinking feeling when she moved her head straight up left and over left and down left. I was struck by the fact that the somatic symptoms were all on the left....J...USA"

2001 Oct 24 (using October instructions): "I have been sharing 'it' with my clients, one to one and in the groups that I am a Life Skills facilitator with. For want of a better handle I have referred to 'it' as a the 'Be Ok Self Hug' position. K...Canada"

2001 Oct 26 (using October instructions): "I wanted you to know that I have used the balancing technique several times now with several clients...both male and female. I really like the results. The results seem very deep and the insights seem to be important. Most of all the process appears to be gentle and yet very effective as a means of releasing very deep issues. I shared the process with a counsellor friend and experienced it myself today...as I wanted to do that. I was very impressed. Congrats on coming up with a wonderful and very useful technique..J... USA"

2001 Oct 29 (using October instructions): "Been away on holiday so I have only just received info; I have been able to down load the new instructions; thank you. Several other therapists have been interested in your approach. I would be interested in training other therapists, let me know what you think. Kind regards. S...UK" I (PWW) said "go for it."

2002 Feb. 26 (using October instructions): "Sounds like really exciting developments. I was using your posture (holding the arms) with trauma clients while lasering and I found it very effective. I'd be interested in the new material - so much to read and absorb, so little time!!! We'll miss you [at Energy Psych Conference 2002 in Arizona]- keep in touch. Cheers for now. J... in Australia"

2002 April 9 (using March instructions): "Hope this finds you well and ever curious and open to our endless universe. Thank you for giving me the Emotional Balancer. Have shared it with my family,

friends and clients. Those of us who have used it have found it an amazing tool while most seem resigned to coping with their past and choose to continue carrying their burdens into their futures." K...Canada"

4. A DESCRIPTIVE SUMMARY of THE RADIANT ENERGIES BALANCE (REB)sm PROTOCOL: A FLEXIBLE and COMPREHENSIVE THERAPEUTIC, and TRANSFORMATIVE PROTOCOL

4.1. INTRODUCTION

So, to repeat, while attending an energy psychology conference in the spring of 2001, I had an epiphany: I discovered that Donna Eden's Radiant Circuits were the most efficient way to work with the body's energy system. With my colleague, Janet Nestor, I spent the next 3 years researching, developing and refining the Radiant Energies Balancesm protocol (the official website, <www.rebprotocol.net> , probes a wide range of clinical, neurological, philosophical, and empirical issues). The protocol can be used as both a sophisticated professional therapeutic system incorporating main stream and cutting edge therapeutic methods as well as an easy to use self help technique. It's one of the most user friendly approaches in the field of energy psychotherapy.

The Radiant Energies Balance (REB)sm protocol provides a bridge between the everyday life of most people and the potential higher (more spiritual) levels of existence. Since the protocol provides dramatic and rapid relief from "the slings and arrows of outrageous fortune," it has the potential to start the average individual on a more spiritual life path and release from the past allowing the movement to a "witness" and "mindfulness" orientation to life (See Part 3 for more information). The protocol builds on leading edge approaches from trauma/PTSD therapy and incorporates approaches from several Energy/Information Psychology systems: Eden's Energy Medicine, HeartMath, EMDR, Brain Gym, Integrative States Therapy, Rapid Eye Technology, NLP, One Brain, and Reiki. The REBsm posture engages the powerful "Radiant Circuit" system.

The basic posture uses Eden's triple warmer/spleen "hug" and connects the central and governing meridians. It balances the Autonomic Nervous System by balancing the Triple Warmer (Stimulator), Spleen, Central, and Governing meridians. These meridians all have dual functions of regular meridians as well as being Radiant Circuits (Curious or extra-ordinary meridians or strange flows). In addition, from a spiritual development perspective, the Radiant Circuits are the principal channels for "Yuan chi" energy which represents ancestral energy or the energy of the soul.

In general, this Radiant Energies Balance (REB)sm provides an "elegant" solution for a wide variety of psychoenergetic problems on the physiological, psychological, and spiritual levels. It might be the most flexible and comprehensive of the all of the Emotional Freedom Processes (EFP). The basic posture has the advantage of not looking "weird" or strange (which tapping and some other approaches do although they DO work). Nor does the REBsm seem too far out (which the purely intentional approaches do to many people). I've heard of clients who won't use tapping in public. I've also heard of counselors who get "ribbed" (good natured or not) about their use of tapping. The REBsm posture and procedure seems an ideal introduction for traditionally trained therapists and counselors who are curious about energy psychology but reluctant to use "that weird tapping thing." These types of problems tend to put a "chill" on the dissemination and wide use of the incredibly powerful and efficient energy/information therapy methods.

My aim is to have ALL people and ALL "helping professionals" free to use these powerful methods when-- and where--ever without restrictions and to increase the effectiveness of the healing profession's "standard operating procedures." This REBsm posture is very powerful but gentle and it can be used ANYWHERE and at ANYTIME without being noticed. I strongly feel it's very important to provide ALL people with an elegant and relatively simple and rapid method to enhance the flexibility, responsivity and sensitivity of the Autonomic Nervous System which will improve their general well being as well as produce an overall balance of their energy/information system; this combination will facilitate their spiritual evolution. This is one reason I've called it People's Radical Release Therapy which I described and defined earlier.

Much of the basic REBsm protocol can be used by clients alone (see "REBsm self help version of the clinical protocol ") Practitioners, using the ancillary material which supports the various modules of the protocol, have a powerful comprehensive tool to help people. The basic posture along with the heart focused aspects provide ideal "home activities" for clients to use as needed. Also, once clients experience the more in-depth aspects of the complete protocol, they can create a signal or trigger which will cause their system to automatically run the balance for any given life circumstance or event that gives them trouble (the so-called "instant/automatic therapy" method).

One of practitioners who tested the REBsm protocol wrote (2002 Aug. 20 posting to an energy psychology list): "Maybe it is a good idea [that] I share what I like about REBsm. In the situations that I have introduced it (in total maybe with 50 people), the responses were positive...People were positively surprised by the releases they experienced with this, in essence, so simple procedure. I used it mostly in situations where clients and students seemed to be in an 'emotional space' where they could have 'spaced out' easily. REBsm seems to be a very grounding procedure. Possibly this is so because it is very heart-centered. As people from this list know, I am very enchanted with TAT (and Tapas) [TAT = Tapas Acupressure Technique]. However, TAT is very 'third eye' centered, and I am still not sure whether a 'third eye' approach is indicated for every one. I tend to err to the conservative side. So REBsm is a nice complement to TAT, IMO[In My Opinion]. It is true that REBsm (if you don't work with the eye-blinking part) is a very inconspicuous procedure. And in this aspect it has the same advantages as iBSSF, iEFT ["instant/automatic therapy" methods of 'instant Be Set Free Fast' and 'instant Emotional Freedom Technique']."

Another practitioner, testing an earlier REBsm protocol, wrote (Email 2001 Oct. 26): "I wanted you to know that I have used the balancing technique several times now with several clients...both male and female. I really like the results. The results seem very deep and the insights seem to be important. Most of all the process appears to be gentle and yet very effective as a means of releasing very deep issues. I shared the process with a counselor friend and experienced it myself today...as I wanted to do that. I was very impressed. Congrats on coming up with a wonderful and very useful technique."

The following case description of the use of the Radiant Energies Balance (REB)sm protocol by Janet Nestor, a master practitioner of REBsm, will provide you with some idea of the potential of using this energy-information approach in psychotherapy.

I consider Janet Nestor a master practitioner of REBsm. She is a co-founder of the Center for Well Being, 1316/1320 Ashley Square, Winston-Salem, NC 27103 USA. Phone: 336-794-2343.

he loves people and wants to be out there among the masses; he just can't do it. I think we stumbled onto something with the REBsm and I hope that he can stay stable long enough to get some good benefits. He was just placed on a new drug protocol so this is a good time to begin. I have to call his psychiatrist and let her know what I am doing and I might try to get her to look at this process too. She is very open to alternative practices; she is an Indian (the country) woman and has a lot of holistic ideas.

Janet

--- Janet Nestor, US master practitioner/developer of the REBsm protocol

4.2. A DESCRIPTION OF THE FEATURES INCORPORATED INTO THE MODULES OF THE REBsm PROTOCOL

Parts 1 and 3 of the REBsm package provide much more information on the research/theory (Part 1) of elements of the protocol and suggestions for additional balancing activities and the "art of delivery" (Part 3).

In practice, Modules 1 - 5 are done in sequence whereas Modules 6 and 7 can be introduced at any time during a session as needed or appropriate. Module 2 on Brain Hemispheres (identifying your most resourceful hemisphere and eye) is also optional and used when either the person is too stressed by the event (then use the more resourceful hemisphere/more integrated eye) or not able to contact the event (then use the less resourceful hemisphere/less integrated eye).

Module 1. Identify an issue

- a.** Quantify the amount of distress
- b.** Formulate a goal statement or affirmation, a Desired Outcome (DO). and quantify its degree of truthfulness

Module 1 involves both identifying the issue to be balanced using the usual quantification of distress (SUD) as well as some initial formulation of a goal with a quantification of it's degree of truthfulness or attainment. Suggested descriptions of each of the 10 units of these scales are provided. Throughout the protocol, we emphasize identifying the physical/body sensations for all aspects of the issue. The general idea is that it is not really important what happened in the past. What is important is how the person has recorded this past and how it effects them NOW.

We seek to firmly establish by clear intention, that all balancing and corrections will honour the total system with all its aspects and parts and all its levels (body, mind, spirit). We also seek to firmly establish by clear intention, that the process will also honour the optimum order of the various aspects and parts of the issue presented for balancing and correcting.

Build yourself an "Energy Shield"

Call upon all your highest healing sources

We begin with a protection activity. When working with the body's energy system, this activity of building a protective "energy shield" is advisable. This can be done in any

acceptable manner and this protocol provides instructions for two such activities: Call upon your highest healing sources o

Module 2: Working with the brain Hemispheres. This work is fascinating but optional. However, it is important to identify if there are felt sense differences between hemispheres/eyes when tuned into the issue and if so to eventually integrate them into closer agreement. Both approaches described below work with the differences between the brain's hemispheres in how they process and view the world. Schiffer stimulates each hemisphere separately whereas the "One Eye Technique" includes both hemispheres as seen through one or the other eyes. Both approaches might provide valuable information to the client on how they are processing and internalizing their experience.

a. Schiffer Approach:

Identifying the most resourceful hemisphere is optional and used when either the client is too stressed by the event (then use the more resourceful hemisphere) or not able to contact the event (then use the less resourceful hemisphere).

The two halves of the brain differ in terms of their present time resourcefulness with one being more "stuck" in the past at a more primitive or less resourceful approach to problems (more information in Part 1 of core REBsm documents; Schiffer and Sargent). We identify this and use this information to show people they have control over how they feel (physically and emotionally) about their issues by simply accessing the more mature and resourceful hemisphere. We also use it to monitor the "emotional load" being felt at any time in the balancing session. If there is a disconnection from the impact of the issue (emotional blunting) it might be useful to increase its "emotional charge" in the present time session by accessing the more primitive or less resourceful hemisphere. If there's too much "emotional charge" then we enlist the more mature hemisphere until this becomes more manageable and then go to the less mature hemisphere and work there. The aim is to have the whole brain (both halves) be mature and in present time. In a sense, the therapist can become a partner with the more resourceful half to re-educate the less resourceful.

b. The "One Eye Technique" (Cook and Bradshaw)

This unique approach has the client cover or close one eye and notice if their experience of the issue changes. The goal is to eventually have both sides the same indicating an integration of the experience; While having one eye closed/covered the therapist can do the EMDR type eye movements on the open eye and notice, very closely, any fluttering, stops, or other unusual non smooth eye movements. When these anomalies are noticed the disturbance is diffused using the REBsm posture or eye blinking or Reiki harmony/front-back holding or deep breathing or massaging (going gently back and forth over the area that shows the disturbance) etc. Whatever works!

Module 3: Assume the Triple Warmer/Spleen/Central/Governing meridians Posture

a. Engage your thymus and heart

b. Cross your ankles

- c. Place your tongue in the roof of your mouth just behind your upper teeth
- d. Alternate squeezing with your hands and gently rocking side to side
- e. Blink your eye lids
- f. Use the reiki harmony position
- g. Use the brow/crown holding posture

In module 3 we enlist the body's energy system, more particularly, Eden's "Radiant Circuits", by assuming the REBSM posture which connects four special meridians which have dual roles of the regular meridians as well as "radiant circuits": The Spleen, Triple Warmer, Central and Governing meridians. The "Radiant Circuits" are very powerful for two reasons:

1. According to Chinese thinking (Wisneski 2000, pp. 33-34), they are the principal channels for "...Yuan chi" energy...which represents the energy we brought onto the planet.... [I]t represents ancestral energy or the very energy of the soul. Yuan chi is the energy of the soul circulating in the curious meridians ["Radiant Circuits"]. This energy is housed in the extra-ordinary, or 'curious' meridians. The chi in the principle (more superficial) meridians contains chi from the food we eat and the air we breathe, i.e., from our environmental surroundings." (more information in Part 1 and see Eden and Feinstein's "Wired for Joy" article). This aspect provides the means for personal transformation or spiritual evolution while fulfilling the therapeutic function of releasing the person from the past which takes place in reason 2 below.
 2. The "Radiant Circuits" function as "hyper links" for the energy system and will immediately go to where ever there is a need for balance and integration. This property automatically does the diagnosis and correction of energy imbalances and the identification and correction of various reversals, which makes the whole protocol much more user friendly.
- a. Assuming the client's anatomy allows it, the special right hand placement engages the heart centered aspects from HeartMath as well as connecting the thymus gland (John Diamond's source of life energy) and the liver and spleen meridians in one simple hand placement.
 - b. Crossing the ankles is borrowed from the Wayne Cook posture to engage more energy circuits across the mid-line.
 - c. The tongue position connects the central and governing meridians which provides a front-back and top-bottom connection.
 - d. The cross lateral squeezing and rocking incorporates approaches from EMDR and Brain Gym. This activity also creates a very relaxed and receptive state. (it engages the cerebellum, an important brain center for cognition as well as balance.)
 - e. The eye blinking procedure incorporates approaches from Elium's Integrative States Therapy and Johnson's Rapid Eye Technology approaches. Some find this helpful and others do not. If it helps the balance use it. It is known that people under various kinds of stress blink far above the rate required for maintenance of eye moisture etc. The general idea is that blinking somehow aids information processing in a general sense, especially stressful information. (It may help strengthen Porges' "Smart Vagus" or "Social Engagement System." See Porges' "poly vagal theory." in Part 1 of the core REBSM documents)
 - f. The Reiki harmony position is a version of the Front/Back holding approach. This posture engages the forehead stress release points and back brain and brain stem in order to relax, calm, balance and solidify the changes taking place during the balancing process.

g. The brow/crown holding posture has a different, more spiritual effect facilitating a stillness, resting of thoughts, a feeling of being in the presence of something holy, possibly involving the Kundalini energy (Krishna and von Weizäcker) of the spine and related neurology.

Module 4. Do deep diaphragmatic (belly) breathing through your nose. Symbolically breathe in the good and out the bad

Deep diaphragmatic (belly) breathing through the nose regulates the heart, cools the blood flow to the hypothalamus (the main brain control center for emotions and basic biological drives), and balances the autonomic nervous system's branches (sympathetic and parasympathetic), especially if the person uses alternate nostril breathing (more information in Parts 1 and 3 of the core REBSM documents).

The following modules are made easier with the help of a coach (Healing Helper or "Healper"):

Module 5. Stay in contact with the issue and its triggers and aspects; notice the emotional and body sensations; the thoughts, sensory images, sensations, memories and words.

Module 5 is the key one to eliminate distress. The practitioner's skill enters here in the "art of delivery." (more information in Part 3 of the core REBSM documents). The instruction is to run a "multi-sensory review or movie" of the disturbing issue with emphasis on present time sensations as the person surveys all the aspects and triggers that come up. To avoid becoming "caught up in the past" the protocol instructs the person to do two things: (a). Maintain a neutral/curious (witness) attitude to anything that may come up (more information in Part 3SM of the core REBSM documents see Mensing's "EmoClear") and (b). Stay in present time and focus on what is happening RIGHT NOW, especially physical body sensations (more information in Part 1 of the core REBSM documents; Ogden and Minton). Whenever there is a release or shift of energy we recommend that the person acknowledge this event with feelings of thanksgiving and gratitude offered to their system, especially their heart. Also, we ask the person to express any insights and learnings that happen in the process of the session.

Module 6. If desirable, do eye movements, eye positions and head positions and combinations

Module 6 can be used any time it might be useful. The use of eye/head positions and movements provides a powerful way to go deeper into the issue and locate any hidden aspects (from NLP, One Brain, Elium's iSt9x9, and other sources). This activity can bring up more disturbance and so must be used with caution. The general aim of the two approaches described in the protocol is to make a survey of the brain and notice where any disturbance remains hiding ("psychoenergetic dissociation"). To these eye/head activities, you can also add humming (gestalt-right brain) and counting (sequential-left brain), and eyes open (external) and eyes closed (internal) activation. Instructions are given for both a general approach and Elium's basic iSt9x9 model. (also may help

strengthen Porges' "Smart Vagus" or "Social Engagement System." See Porges' "poly vagal theory" in Part 1 of the core REBsm documents).

In addition, the client can close/cover one eye while the "healer" guides them through the various eye movements/positions to release any tensions that manifest themselves. The goal is to have all movements in both eyes smooth and relaxed.

Module 7. Finish the balance with a Positive Replacement of the negative. Focus on your heart and give it lots of core heart feelings.

Module 7 also can be used any time it might be useful. Indeed, it SHOULD be used during the balance session whenever there is an energetic shift. However, it is especially important to do this at the completion of a session. The idea behind it is that eliminating the negative effects ("emotional charge") of the issue leaves an emotional/energetic "vacuum" which should be filled with a positive energy, emotion, or goal. We especially encourage the use of the Carrington/Sutherland "choices" phrasing since it is more empowering (more information in Part 3 of the core REBsm documents). Say with conviction something like: "I choose to be free of this (state the nature of your issue) from now on." Then formulate a positive goal/affirmation or Desired Outcome and say something like: "I now permanently replace (this issue, describe it) with (your goal or Desired Outcome, describe it)."

Summarize any insights and learnings that happen during the session.

Finally, focus on your heart and give it lots of core heart feelings.

At the end of the session we **strongly recommend you DO SOME STRETCHING** such as Eden's "Heaven Rushing In" or "Merging Heaven and Earth" qigong exercise. This will help anchor the changes into your total system. These exercises also have the additional advantage of capitalizing on the power of imagination.

Home activity: Do the at home daily life activity especially the HeartMath "REBsm-Freeze Frame" and/or the more meditative "REBsm-Heart Lock-In" techniques, preferably using Module 3 pose. (see "REBsm on a page")

The home (in vivo) activity involves the REBsm-HeartMath Freeze Frame and/or the more meditative REBsm-Heart Lock In techniques (using the pose described in Module 3) of giving your physical/symbolic heart positive core heart feelings. This reduces the activity of the sympathetic branch of the autonomic nervous system (fight-flight) and increases the activity of the parasympathetic "smart vagus" or "social engagement system" (more information in Part 1 of the core REBsm documents).

4.3. INFORMATION SOURCES FOR THE RADIANT ENERGIES BALANCE (REB)sm PROTOCOL

Many are available on the website: www.rebprotocol.net: Available in Portable Document Format (pdf) and MS Word 2000. You'll need to have the Adobe Acrobat Reader program on your computer. It's *free* to download -- and you'll want to have it anyway, since most internet information that's heavy on layout requires this program in order to be viewed. If you still need to download your free version of Adobe Acrobat Reader, copy this hyperlink and paste it into the "address" [URL] window in your web browser and follow the directions from there. (www.adobe.com/products/acrobat/readstep2.html).

4.3.1. REBSM CORE DOCUMENTS (* = free download)

- *One: Part One: The Radiant Energies Balance (REB)SM Protocol
Philosophy/Research/Theory Background© (~335 pp) With Bibliography,
References And Resources © (~60 pp.)
- Part Two: The Radiant Energies Balance (REB)SM Clinical Protocol Instructions© (~28
pp.)
- *REBSM Self Help Version of the Clinical Protocol" © (4 pp)
- *REBSM for Relaxing, Focusing and Centering yourself © (4pp)
- Part Three: Additional Approaches, Other Practitioners' Uses Of The Radiant Energies
Balance (REB)SM Protocol, And Resources For "The Art Of Delivery"© (~200 pp.)
- *A Descriptive Summary of the Radiant Energies Balance (REB)SM ©(~40pp)
- *An "Active Ingredients" analysis of the Radiant Energies Balance (REB)SM protocol ©
(~47pp)

RELATED DOCUMENTS (* = free download)

- *Eden and Feinstein "Wired for Joy" (11 pp.)
- *Eden and Feinstein "Triple Warmer: It's Hotter Than You Think" (4
pp.)
- *Feinstein and Eden "The Meridians and the Emotions: Why Energy
Psychology Can Go Where Joseph Wolpe Never Dreamed" (10 pp.)

5. AN "ACTIVE INGREDIENTS" ANALYSIS OF THE RADIANT ENERGIES BALANCE (REB)SM PROTOCOL

(see the separate document)

Abstract: The "Active Ingredients Analysis" approach is analogous to a chemical analysis of natural substances for health which seek to discover, in the complex composition of a natural substance, those ingredients or aspects that create the health promoting effects. The Radiant Energies Balance (REB)SM is a psychotherapeutic protocol that incorporates many ingredients or aspects taken from mainstream psychotherapy, trauma therapy, psychophysiology and adds the body's energy system to produce an integrated and comprehensive approach. This paper provides a detailed description of the ways that the REBSM protocol incorporates the "active ingredients" into a unified whole.

- 5.1. Exposure and attunement
- 5.2. Dissociated observation
- 5.3. Submodalities and transmodal reattunement
- 5.4. Dual attention
- 5.5. Bioenergy

- 5.6. Paradox
- 5.7. Comfort
- 5.8. Positive expectation

ADDITIONAL BODY BASED ACTIVE INGREDIENTS

Any psychotherapy that doesn't get out of its mind will be less effective and efficient!

(my main thesis!)

I consider the following Body based Active Ingredients to be significant contributors to a successful intervention. Mainly they involve the use of the body in various ways to access and change the manner in which the past is stored or encoded. Involving the body is very integrative since the body does not function as a machine which is still -- after 350 years-- the most common model used by "scientific psychology and medicine." Rather, it functions more as a "Holonomic Polyphasic Liquid Crystal" (Beal, Ho, Oschman). There is an organization, the US Association of Body Psychotherapy, which promotes this orientation.

5.9. Body based active ingredient: The importance of using neuroscience information in therapy

Some lessons from neuroscience for therapists to consider (See section 16.2.1 of this paper)

5.9.1. Lesson 1: The brain is profoundly interpersonal

5.9.2. Lesson 2: Emotions organize the brain

5.9.3. Lesson 3: Tailoring interventions to clients' brain styles can increase therapy's effectiveness

5.9.4. Lesson 4: Narrative is fundamental to brain function and attachment

5.10. Body based active ingredient: Sensorimotor Psychotherapy of Ogden and Minton (See section 16.2.2. of this paper)

5.11. Body based active ingredient: Touching, tapping, rubbing and moving (Andrade; Oschman; Rothman)

5.11.1 Client-coach/"healer" touching (physical contact) (See section 16.5. of this paper)

5.11.2. Neuro-humoral model of Joaquín Andrade (See section 16.6.1. of this paper)

5.11.3. Energy medicine model of Oschman (See section 16.7. of this paper)

5.11.3.1. The cell is NOT a bag

5.11.3.2. Continuum

5.11.3.3. Information Flows

5.11.3.4. Properties of the Living Matrix

5.11.3.5. Coherence

5.11.3.6. Cellular Oscillations and Systemic Regulations

5.11.3.7. Gravity and Physical and Emotional Structure

5.11.3.8. Some Conclusions

- 5.12. Body based active ingredient: The cerebellum and information processing (Bergmann 1999; Leiner and Leiner; Schumahmann and also Courchesne and Allen; Dennison and Dennison; Diamond; Hannaford; Scaer 1997), (See section 16.8. of this paper)
 - The cerebellum: The treasure at the bottom of the brain
 - 5.12.1.1. Resemblance to Computing Machines
 - 5.12.1.2. Functions of the Cerebellum
 - 5.12.1.3. The Advantages of Automation
- 5.13. Body based active ingredient: eye and head positions and movements and eye blinking
 - 5.13.1. Eye and head positions and movements (Furman and Gallo) (See section 18. of this paper)
 - 5.13.2. Eye blinking (Teese et al) (See section 18.2. of this paper)
- 5.14. Body based active ingredient: Accessing the brain hemispheres
 - 5.14.1 The right orbitofrontal cortex (Scaer; Schneider; Schore; Stroebel) (See section 19.1. of this paper)
 - 5.14.1.1. Master Regulator of the Brain and Body; Carol J. Schneider, (1997)
 - 5.14.1.2. Neurobiology of the Self; Charles F. Stroebel, 1997
 - 5.14.1.3. Observations on Traumatic Stress; Robert C. Scaer, 1997
 - 5.14.1.4. How are Our 'heartfelt' Feelings Generated?
 - 5.14.2. Accessing the more resourceful half of the brain (See section 19.2. of this paper)
 - 5.14.2.1. Schiffer's model (See section 19.2.1. of this paper)
 - 5.14.2.1.1. Schiffer's model: Theoretical implications
 - 5.14.2.1.2. Schiffer's model: Clinical implications
 - 5.14.2.2. Sargent NLP model (See section 19.2.2. of this paper)
 - 5.14.3. The one eye technique of Cook and Bradshaw (See section 19.3. of this paper)
- 5.15. Body based active ingredient: Polyvagal Theory of Stephen Porges (See section 15.2. of this paper)
- 5.16. Body based active ingredient: Breathing Thorough The Nose (Alder; Shannahoff-Khalsa) (See section 17 of this paper)
 - 5.16.1. Breathing and heart rate variability (HRV) (See section 17.6. of this paper)
 - 5.16.2. Introduction: breath in life and health (See section 17.1. of this paper)
 - 5.16.3. Unilateral Forced Nostril Breathing (UFNB) (See section 17.7. of this paper)
 - 5.16.3.1. Peripheral effects of UFNB (Unilateral Forced Nostril Breathing)
 - 5.16.3.2. Left-right asymmetry in distribution of sympathetic and parasympathetic (vagal) fibers to the heart
 - 5.16.3.3. Central nervous system-cognitive effects of UFNB (Unilateral Forced Nostril Breathing)
 - 5.16.3.4. Clinical applications of UFNB (Unilateral Forced Nostril Breathing)
- 5.17. Body based active ingredient: Engaging the heart; Heart Rate Variability (HRV), anxiety and the autonomic nervous system (ANS) (See section 15.1. of this paper)
 - 5.17.1. Traditional psychology/psychiatry research (See section 15.1.1. of this paper)
 - 5.17.2. HeartMath research and methods (Armour; McCraty, Atkinson, Tomasino et al of HeartMath Institute; Paddison; Pearce; Pearsall; Tiller) (See section 15.1.2. of this paper)

**6. SUMMARY OF THE ADVANTAGES OF THIS ENERGY/INFORMATION SYSTEM
BALANCING PROTOCOL
What this Balance Does**

6.1. It integrates approaches from traditional therapy and psycho physiological research in the autonomic nervous system (ANS) and Heart Rate Variability (HRV) with a very simple, powerful and elegant procedure from energy/information therapies. Thus, in terms of Ken Wilber's (2000) four Quadrant Integral Model (see figures 6.1. and 6.2. below), it bridges between the Upper Left quadrant ("I"-Interior-Subjective-Individual-Intentional) and the Upper Right quadrant ("It"-Exterior-Objective-Individual-Behavioural) approaches to human functioning. The other two lower quadrants refer to collective approaches to human functioning (LL: "We"-Interior-Subjective-Collective-Cultural and LR: "Its"-Exterior-Objective-Collective-Social)

Interior	Exterior	
I UL Interior-Subjective-Individual Intentional	IT UR Exterior-Objective-Individual Behavioural	Individual
WE LL Interior-Subjective-Collective Cultural (worldspace)	ITS LR Exterior-Objective-Collective Social (system)	Communal or Collective
Left Hand	Right Hand	

Figure 6.1. The Four Quadrants of Knowledge about the "Kosmos" (the totality of reality)

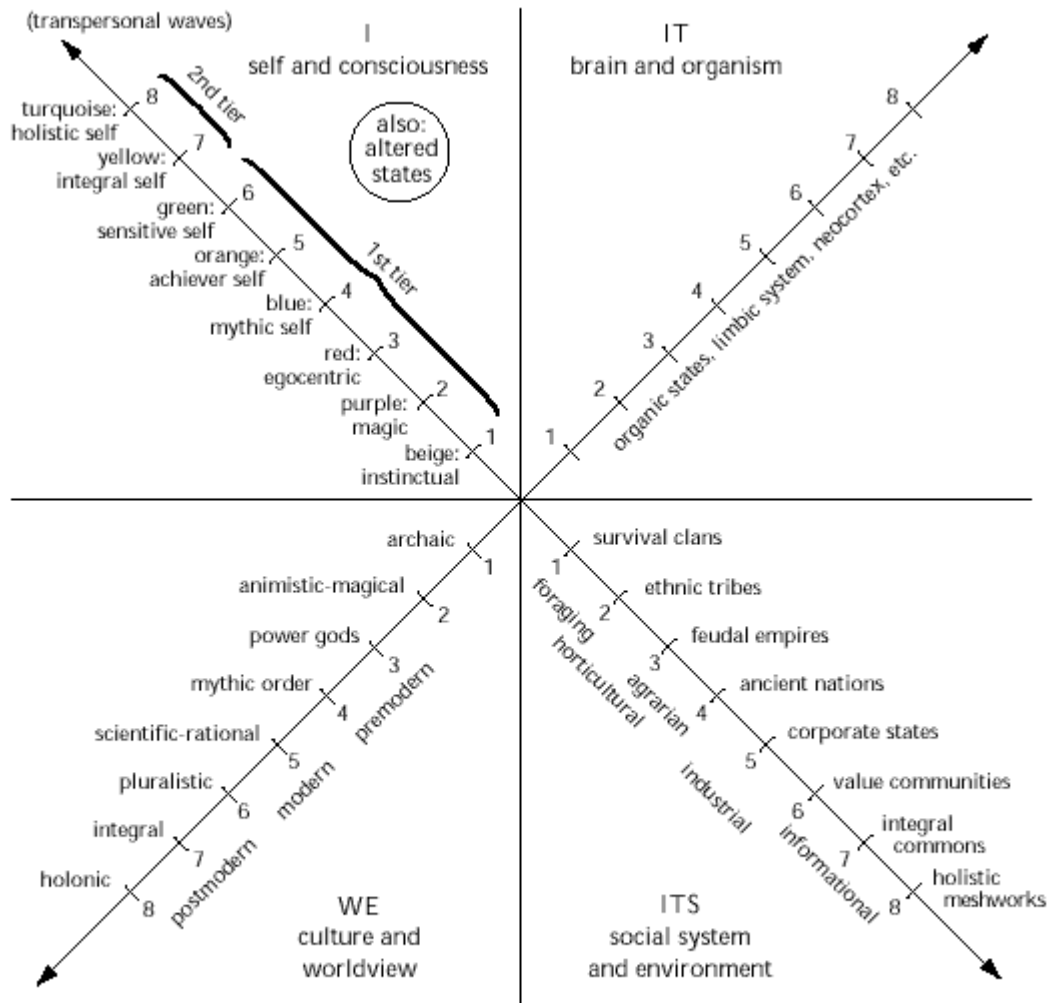


Figure 1. *Some Examples of the Four Quadrants in Humans*

Figure 6.2. from *Collected Works of Ken Wilber volume 7*

6.2. It provides an alternative to invasive (drug) or inefficient and cumbersome methods from traditional psychotherapy (talk, insight, cognitive-behavioural, counter conditioning). At the same time it's also complementary to traditional approaches in that the use of this balance can make the traditional much more efficient.

6.3. As is true of all energy/information therapies, it intervenes on the much more fundamental level of energy and information which, according to modern physics, underlies chemistry and matter (the Quantum/ Holonomic/Implicate order physics models supersede and include Newtonian models of physical reality). It therefore intervenes on the substrate of all psycho-biological systems, especially the nervous system (and especially the autonomic nervous system), micro tubules (Hameroff and Penrose papers), assembling gap junction hemichannels (Rakovic and Jovanovic-Ignjatich et al papers), quantum holography (Mitchell, Marcer, Benford papers) neurotransmitters, endorphins, hormones etc.(Swack). These biological systems, in turn, form a physical substrate for the psychological processes of cognition (memory, thinking, problem solving, creativity, etc.) and

emotions and feelings. (Collinge, 1998; Eden and Feinstein, 2002a and b; Furman and Gallo, 2000; Gallo, 1998; Gerber, 2000; Tiller, 1997) The underlying assumption of the balance is that the Triple Warmer meridian controls the Sympathetic branch of the Autonomic Nervous System (ANS) and the Spleen meridian controls the Parasympathetic branch. Again, in terms of Ken Wilber's (2000) four Quadrant Integral Model, it deals with the more subtle aspects of the Upper Right quadrant rather than the typical approaches which are still much imbedded in Newtonian/19th century metaphysics of gross sensory empiricism.

6.4. Among the many energy/information therapies available, it provides the most comprehensive, complete, internally coherent, broad spectrum, in depth balance possible relying greatly on the inner wisdom of the body's energy/information system. It could be viewed as "holistic holism" balancing approach!

6.5. It requires no diagnostics since the energy/information system's inner wisdom is used to go wherever balance is needed and do the corrections spontaneously for the issue. The assumption is that this wisdom is much greater than that of any "healper," no matter how skilled. This is a huge advantage for clients and practitioners.

6.6. The basic posture is elegantly simple to use, it's inconspicuous and feels and, in fact, is very natural since it's a spontaneous reaction to stress.

6.7. The balance looks natural and therefore it can be used practically anywhere without looking weird or foolish. This makes it much more amenable to use in daily life and professional counseling; again, a huge advantage for clients and practitioners.

6.8. The helper or therapist functions more as a coach or guide rather than a "healer." More like a "healper" ("Healing Helper"), one who helps the person keep focused on the issue by pinpointing aspects, checking progress etc. and encourages persistence in eliminating "psychogarbage."

6.9. As with all energy/information therapies, when properly done, the person does NOT need to examine, sort and smell their "psychogarbage" in order to get rid of its effects (symptoms). Symptoms are used to get at aspects and triggers and track progress (SUDs or Subjective Units of Distress). When the person no longer has symptoms (the SUDs are zero regarding the issue), the energetic cause has been found and the disturbance eliminated. Whenever this process of symptom elimination occurs it is necessary to "fill the gap" with a desired outcome.

7. THE DYNAMIC HOLONOMIC ENERGY/INFORMATION MODEL OF BODYMIND FUNCTIONING

"Energy medicine is at the same time high-tech/low-tech; twenty-first century/twenty-first century B.C.; very rational/very intuitive, provable/disprovable; academically accepted/unaccepted; real cool/very 'woo-woo.' (Collin, 2000) Energy approaches to biomedicine and psychology present a new paradigm for western 19th century scientific thought (the pathological aspect of which I call "fundamentalist materialism"). Thomas Kuhn's famous formulation of the process of "scientific revolutions" pointed out that sciences DO NOT progress by the scientific method. I view the progress as a socio-psycho-cultural happening in the scientific community where scientists work within a paradigm or set of accepted beliefs (remember the initials for belief system!), which

eventually weakens until new theories and scientific methods replace it. Frequently, scientific progress advances funeral by funeral as the old guard die and the new guard take over. The energy model for biomedicine and psychology has been around for thousands of years and worked very well in many many societies. This presents us with an interesting paradox about this "new paradigm." Western science has been around for a much shorter time and in a much more restricted area.

Consider the increasing evidence that the current understanding of the operation and potential of the human BODYMIND (based on the common orthodox view of the nervous system using only the 19th century electro-chemical-mechanical-ionic-current-neuron model) leaves many current "facts" of the brain and BODYMIND with an inadequate and incomplete theoretical basis (referred to as "worshipping at the alter of the neuron"). See Oschman's summary (section 11.7. of this paper) of the research and theory for an up-to-date (2000) survey of the incredible sophistication of our body.

I refer to the "new" (3000 year old!) model with the VERY long name as:

- ∞ Dynamic in that, the BODYMIND system lives in constant flux, responding to internal and external factors.
- ∞ Holonomic in that the BODYMIND exhibits certain properties of a hologram but at a vastly more sophisticated level. More accurately, it functions as a "Holonomic Polyphasic Liquid Crystal" (see section 13.10. of this paper and Ho, Haffegge, Newton, Zhou, Bolton and Ross, 1996). The hologram, a very compact and efficient data storage method; all the information is contained in each part using a phase interference encoding process. The photographic hologram, however, does not possess the brain-body's capability of simultaneous specialization and generalization in the same physical area. In addition, given proper techniques, you can access information from, and influence the whole BODYMIND from practically any specific point or area.
- ∞ Energy/Information (or active information of Bohm and Hiley) in that the underlying actions of life, fundamental to structure and the operation of chemistry, are electro-magnetic. These electro-magnetic actions, currents and fields carry information and "instructions" depending on the various interactions of energy strengths, frequencies, charges, and direction of flow. (Rubik, 1995)
- ∞ Model in that, although this concept has an ancient history going back more than 2000 B.C. in China, Egypt and India, it is relatively new to modern Western psycho-biological thought. This very useful "new" paradigm explains many facts that have been "damned"(ala Charles Fort) out of existence by the current scientific orthodox 19th century "fundamentalist materialist's reality tunnel" (model).
- ∞ Of BODYMIND Functioning in that, given the holonomic aspect above, there is the recent Western Scientific "discovery" of the unified operation of body-brain and mind. The mind/body problem is not part of the cultures un-infected by Socratic "logic", e.g. "the 'law of the excluded middle" which infects us with either/or thinking, and the Cartesian "solution" of dualism. Some quotes from Descartes give the flavour of the issue: "I do not recognize any difference between the machines made by craftsmen and the various bodies

that nature alone composes...There is nothing in the concept of body that belongs to mind; and nothing in that of mind that belongs to the body." That seems pretty definite!!

Traditional Chinese scientific thinking, while using strange-to-us metaphors, is a "Polar-Complete" worldview (Holbrook, 1981) in that they traditionally recognize differences ("polar") but also recognize their interdependence ("complete"). The Western worldview is described as "Absolute-Fragmental". The "absolute" aspect causes Western scientific worldview to be "mystical" in that it "worships" theories and suffers from "paradigm trance." The "fragmental" aspect causes the whole "mind/body PROBLEM". These two flaws create the philosophical groundwork for the scientific "religion" of 19th century "Fundamentalist Materialism" which plagues much of modern Western thought. The Orient never really had the "Mind-Body PROBLEM" since they never were influenced by the thought of Socratic "logic" and the Cartesian "solution" of dualism. [see Bruce Holbrook (1981) and Robert Anton Wilson (1986/1991). Richard Gerber (1988) refers to this distinction as "Newtonian vs. Einsteinian Medicine." Mark Rider (1992) refers to it as a "Homodynamic" model Metzner, (1993) refers to "The split between spirit and nature in European consciousness"].

The "Mind-Body PROBLEM" involves mainly a limited philosophical/conceptual world view since the average person, upon reflection, will know that the two interact and mutually influence each other; i.e., when you're ill with the flu, can you be intellectually or creatively active? When you're depressed or stressed you are more prone to illness.

How does modern conceptualizing attempt to solve the "Mind-Body PROBLEM"? By creating hyphenated disciplines such as PsychoNeuroImmunoEndocrinology. Literally, they jam the system together in their minds to create a "new" discipline to deal with the true holonomic structure of the system. This attempt leaves out other areas of interaction and influence such as the physical, seasonal and socio/cultural context and spiritual matters. R.A. Anderson has a regular column in the Townsend Letter for Doctors and Patients titled "*PsychoNeuroImmunoEndocrinology* [Caps and *italics* added to clarify the pronunciation] review and commentary" and states as an introduction to each column that "Psychoneuroimmunoendocrinology is a way of framing the unity of mental, neurological, hormonal and immune functions with its many potential applications. PNIE addresses the influence of the cognitive images of the mind (whatever its elusive definition) on the central nervous system and consequent interactions with the endocrine and immune systems. This column explores the manifestations of this Psychoneuroimmunoendocrinological theory in experimental and clinical settings." To become a psychoneuroimmunoendocrinologist you must be able to pronounce it!

While Western thought is currently struggling with solving the "Mind-Body PROBLEM," Eastern thought has a 3500 year head start. Ironically, this ancient viewpoint appears much more in tune with modern physics' field theory and quantum mechanics which developed around the start of the 20th century. The label "quantum mechanics" reflects the 19th century mindset that still prevailed, but the picture of reality given by these approaches seem as far out as any mystical world view. Indeed, J. B. S. Haldane said "The universe is not only stranger than we imagine, it is stranger than we CAN imagine!" *To do a little shaking up of your world view/reality tunnel/belief system try some of these information sources:*

- ∞ <<http://www.wingmakers.com>> a paradigm shattering New Mexico cave archeological find. See the art/symbols and listen to the music from 2800 AD. WingMakers is also written up in *Nexus: New Times Magazine*, April-May 1999, v. 6, # 3, pp. 31 ff and Aug-Sep 2000, v. 7, #5, pp59-62.
- ∞ <<http://www.nexusmagazine.com>> *Nexus* is an excellent source for other paradigm shattering information and sources;
- ∞ <<http://www.keelynet.com>> for alternative energy sources;
- ∞ <<http://www.borderlands.com>> for general Borderland Sciences Research Foundation information;
- ∞ <<http://www.newphys.se>> The Swedish Association for New Physics for information on areas not "respectable and acceptable" by/to mainstream science;
- ∞ <<http://www.projectcensored.org>> for major stories which are the most under-reported by the mainstream press;
- ∞ <<http://www.thebooktree.com>> for non-mainstream books on paradigm shattering ideas;
- ∞ <<http://www.digbio.com>> for Jacques Beneviste's latest work (his work is a real thorn in the scientific establishment's corpus)

In tabular form, the comparison of this approach in terms of East (mainly Chinese) and West (mainly Euro-North American) metaphors follows (Beinfeld and Korngold, 1995, see also Metzner,1993) (see figure 7.1 for a pictorial representation of this table):

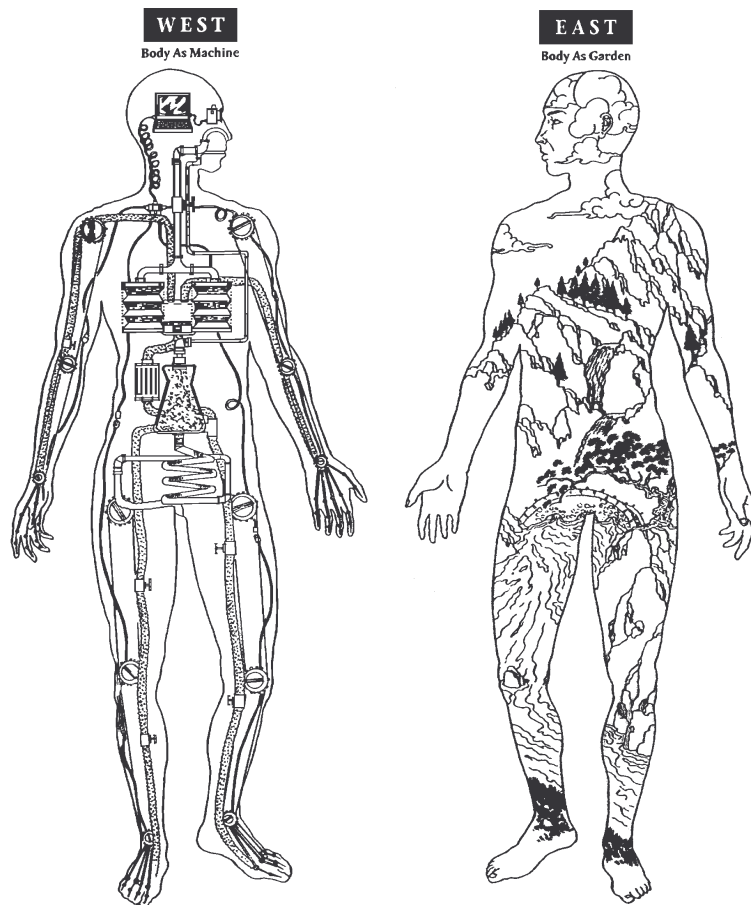


Figure 7.1. Basic distinction between “East” and “West” views of the body

**WEST: BODY AS MACHINE:
BIO-MECHANICAL MODEL**

**EAST: BODY AS GARDEN:
HOLOGRAPHIC MODEL**

The body acts like a machine that can be dismantled and reduced into smaller and smaller constituent parts with the heart as pump, the lungs as bellows, the joints as gears and levers, the nervous system as electrical circuitry, the brain as computer, the eye as camera, the stomach as chemical beaker, the intestines as plumbing, and the liver and kidneys as filters.

Treatment frequently involves a substitution of a defective part, e.g. transplant technology is similar to the repair of a car: Got a defective carburetor? Put in another one (new or rebuilt). The problem with this method applied to body parts happens when the body does not like the foreign organ--it doesn't fit in with the ecology of the rest of the organs producing the problem of organ rejection develops. The solution? Suppress the immune system which creates a whole new set of problems ("side effects" which can easily become "main effects") which, when treated, frequently become another source of problems, and so on in a deadly regression.

The human landscape embodies the primal forces in nature--Wood, Fire, Earth, Metal, Water--that organize the body's inner air, rivers, and mountains. Five functional systems called Organ Networks--the Liver, Heart, Spleen, Lung and Kidney--govern particular tissues, mental facilities, and physiological activities, generating and regulating the body's constituents--Shen, Qi, Moisture, Blood, and Essence.

OUTLOOK OF MEDICINE

<p>War-on-disease with doctor as general, disease as enemy, patient as occupied territory. The goal: to eradicate symptoms and maximize performance.</p> <p>The major metaphor for treatment appears as violence and war. "The war on cancer," "Fighting infection," "Killing germs," using aggressive and invasive methods of surgery, radiation, and drugs (chemical warfare) and the like (what I call "slice-n-dice, zap and pickle" treatment methods). Any allopath that uses "alternative" methods risks having their license to practice medicine revoked. For a reasoned and insightful critique of mainstream medicine from some of "their own kind" see Goodwin and Goodwin (1984) and Goodwin and Tangum (1998)</p> <p>The allopathic model relies almost exclusively on the germ (microbe) theory as originally formulated by Louis Pasteur (1999, Appleton, <u>The Curse of Louis Pasteur</u>). This "magic bullet" approach has created the "super germ" problem and "side effects" (which often are "main effects"). "We estimated that in 1994 overall, 2,216,000 hospitalized patients had serious adverse drug reactions and 106,000 had fatal adverse drug reactions, making these between the fourth and sixth leading cause of death [USA]." (1999, <u>National Post</u>, see also Grimes, 1993; Smith, 1991; Nuland, 1995; Pear, 1999; Jenkins, Nuland, '1999; Lazarou, 1998)</p>	<p>Cultivate health with doctor and patient in partnership to improve ecological conditions. The goal: to enhance self-regulatory capacity.</p> <p>The major metaphor for treatment appears as one of ecological balance, both within the person and between the person and the environment--physical, social and spiritual. (See Jeffres and Casura,2000).</p> <p>The microbiologist, Pierre Antoine Béchamp, a contemporary of Pasteur said "The idea of a microbe as a primary cause of disease is the greatest scientific silliness of the age." "Today's [1998] biology, dominated by the molecular approach developed since about 1940, is suffocated by an immense amount of experimental data on molecular aspects of biological functions which present an extremely fragmented view of the living state. The very success of this approach is now becoming biology's greatest enemy...There is neither a conceptual framework to unify the findings into a theory of biology, nor even one to guide further research." (Bischof, 1998. however see Oschman, 2000)</p>
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HEALTH

The absence of disease and functioning within normal parameters. This belief becomes: if you're no sicker than the neighbors, you're healthy. The so called "health care system" and "health sciences centers" are really "sick care and sick sciences..." The reason they don't call it this involves an image management problem. Modern allopathic, "scientific," Euro-North American medicine seems mainly one of symptom/pathology management, lacking any sophisticated concept of "high level wellness."

Integrity, adaptability, continuity, balance, undisturbed flow of energy and information throughout the system. Each person has a unique biological terrain to be understood; a resilient, sensitive ecology to be maintained. The concept of "biological terrain and biological ecology" for optimum health continue to gain more and more adherents. "The goal is to change aberrant bio-energetic fields of cells--the ultimate soil of all diseases." (Yurkovsky, 2000 and Savva, 2000)

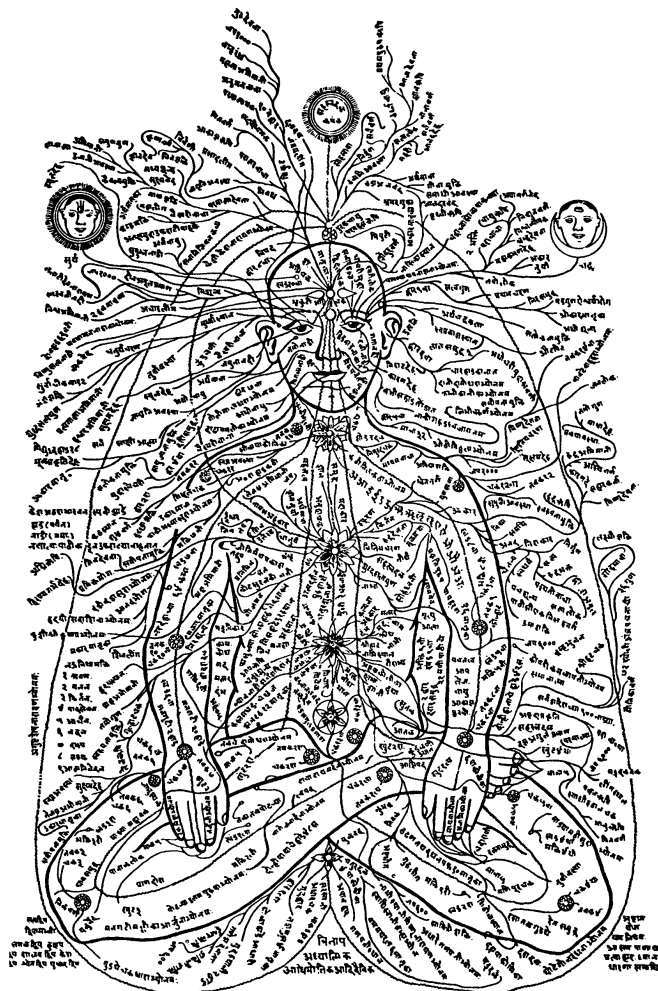


Figure 7.2: Ancient diagram of the energetic pathways in and around the human body (attributed to the prophet Ratnasara, Tibet, ca 19th century. Taken from Oschman, 2003, Figure 2-5, p. 22)

8. SOME MODERN WESTERN "HARD SCIENCE" RESEARCH ON THE "NEW" PARADIGM

What is standing in the way of further scientific discovery, is not our ignorance, but the illusion of knowledge.

Daniel Boorstin (quoted in Jonas, 1998)

In my reading in the area of "Energy Medicine: Bio-Electro-Magnetism Division" the United Kingdom researcher's book of reference is the quite technical (lots of physics and electromagnetic engineering terms and concepts) Smith and Best (1989). The North America researcher's books of reference are those of Robert O. Becker, which, while somewhat technical, are nonetheless readable: Becker and Selden (1985) and Becker (1990a)

Cyril W. Smith has done some incredible research on the area of allergies, general hyper-sensitivities and electromagnetic hyper-sensitivity (see chapter 6 of his book). The brilliant research Becker has done (since the 1950's) on what he calls the parallel (second) nervous system provides the needed theoretical framework for a more complete understanding of brain operation and the BODYMIND interface. As I stated earlier, the present orthodox view of the operation of the nervous system using only the 19th century electro-chemical-mechanical-ionic-current-neuron model leaves many current "facts" of the brain and BODYMIND with an inadequate and incomplete theoretical basis. It is interesting that both of these researchers have been largely ignored by the orthodox fundamentalist scientists who prefer their favorite consensus peer supported "Reality Tunnel" to be undisturbed by these "new" facts.

Knox (2000) in her article "Physics, biology and acupuncture: Exploring the interface," has many thought provoking comments and suggestions for research. "...[B]ased on the needle locations [of acupuncture], CNS [Central Nervous System] peptides and changes in neuroendocrine function do not fit logically as *mechanisms* of acupuncture efficacy. These data would be more logically interpreted as results...as changes occurring farther downstream in the causal pathway. (Knox, 2000, p. 13) "...[C]linical changes are achieved by manipulating the energy flow in meridians throughout the body. However, the concept of energy flow in the body...is not consistent with western concepts...Despite the paramount importance of...electromagnetic systems in diagnosing illness, they are regarded by the medical community as epiphenomena that have no intrinsic function...[However] oscillations in biological systems are ubiquitous...such oscillations play an important role in biochemical regulation (Frolich, 1968)...[This] digitizing [of] information [allows] a more accurate signal transfer by protecting the signal from the 'noise' of surrounding...cellular processes (Rapp, et al, 1981)...Many of the molecules in the body are dipoles [incorporating both positive and negative charges]...Atoms on dipolar molecules oscillate, creating electromagnetic waves that can be amplified by water (whose molecules also have a dipole moment)...[T]he structure of dipoles would allow them to align with other dipoles in 'strings'...[T]he acupuncture meridians [could be] strings of dipoles held together by their electric charges." (Knox, 2000, p. 14) "...[A] perturbation at a particular point in a meridian might be associated with a specific range of chemical changes...[P]hysical changes in energy systems would precede chemical changes... [C]omponents with electric dipole oscillations interact through nonlinear long-range Coulomb forces..." (Knox, 2000, p. 15)

Turning to quantum field theory, there are two features which biology and medicine must consider: "...quanta, the particles that constitute [the field]; and the phase, which determines how the different simultaneous trajectories of the quantum object must be superimposed...[These] cannot be simultaneously known...Focusing on particles and their location...is...what biomedical science does...[Thus] we preclude (by definition) our possibilities of recognizing the importance of the corresponding phase relationships in biological functioning...[T]he molecules we are studying emerge from quantum wave dynamics and ...underlying mathematical relatedness is essential to understanding them...If we ignore the energy aspects of matter, and thus the laws that apply to the inherent wave forms, we may have a great deal of difficulty understanding some off the material phenomena that we observe. Or we may simply 'not see' some very important phenomena at all...[B]ioelectrical systems are an integral part of human physiology and...they have important biological functions. Ninety percent of skin points of particularly high conductivity coincide with traditional acupuncture points. (Chen, 1996)...Furthermore, electromagnetic phenomena outside the body can influence physiological functioning within it...(Binderman, 1985)" (Knox, 2000, p. 15-16)

"Thus, there are three basic facts that are currently being ignored...(1) Ubiquitous bioelectrical phenomena in the human body, which are either ignored or treated as epiphenomena. (2) Documented effects obtained from needle locations that are not consistent with a mechanistic role for the neurophysiological and neuroendocrine systems that are purported to explain them. (3) Chemical properties are determined by the laws of physics, and experimental physics has demonstrated that matter and energy are the same fundamental substance." (Knox, 2000, p. 16)

Knox proposes three hypotheses:

"Hypothesis 1: Biological ubiquitous electromagnetic systems have potential for use in the treatment and prevention of multiple human diseases. Abuse of these systems...can result in disease."

"Hypothesis 2: The mechanism of acupuncture is fundamentally different from any currently known treatment in western medicine. Its demonstrated neurophysiological and biochemical efficacy is achieved not through manipulation of matter but through the manipulation of energy. The mechanism of energy meridians may involve dipole 'strings.'"

"Hypothesis 3: There are two primary approaches to the treatment and prevention of disease: Approach 1: Apply matter to 'fight' matter [modern "scientific" medicine]...Approach 2: Regard the primary cause of matter as its underlying energy structure...Restore the body's innate ability to heal itself by restoring balance in this [energy] system...The primary characteristic of this method is that it targets the whole body and local areas of concern change automatically as balance is restored." (Knox, 2000, p. 16)

In conclusion, Knox states "...[T]he accuracy of scientific data depends entirely upon the nature of the questions that spawn the hypotheses. Variables that are excluded from the original hypotheses will not be included in the experiments and will not appear in the results...[C]oncentration on the particles renders the wave aspects undetectable." (Knox, 2000, p. 17)

9. SOME HISTORY OF THE CONCEPT OF HOW THE BRAINBODY FUNCTIONS AND THE CURRENT PARADIGM BATTLE

Becker (1990a), in the opening of chapter one "The history of life, energy, and medicine" provides a quote from the British philosopher and scientist Roger Bacon (NOT Francis); to wit:

Since the days of revelation, in fact, the same four corrupting errors have been made over and over again: submission to faulty and unworthy authority; submission to what it was customary to believe; submission to the prejudices of the mob; and worst of all, concealment of ignorance by a false show of unheld knowledge, for no better reason than pride.

Now the interesting thing about this quote is that Roger Bacon lived 1214?-1294?! He describes the operation of "fundamentalist" or "close minded" thinking which operates in what I refer to as "The M.O.T.S. Mode" (More Of The Same). Becker's own battles to have his research published are recounted in "Postscript: Political Science" (Becker, 1985, pp. 330-347) He states there "[M]ost scientists today are over specialized and anonymous -- although science as a whole is somewhat Mephistophelian in its disregard for the effects of its knowledge. It's a ponderous beast, making enormous changes in the way we live but agonizingly slow to change its own habits and viewpoints when they become outmoded." (Becker, 1985, p. 330)

An interesting example of this mode of operation is "The Benveniste Affair: A Research Scandal" (see Becker, 1990a, pp. 120-122 and Brendan O'Regan, 1988). This "affair" refers to the disgraceful behaviour of members of the "new scientific inquisition" in investigating the research Benveniste and his colleagues did on the efficacy of homeopathic preparations. In North America we have an unfortunate organization with the cute acronym of C.S.I.C.O.P. (Committee for the Scientific Investigation of Claims Of the Paranormal). They are the staunchest of the true believers in 19th century "Fundamentalist Materialism." Wilson says this group's acronym really stands for "Committee for Slander, Invective, and Calumny against Open-minded People", (Wilson, 1992, p. 74). I say that the "S" stands for "Sophistry" and their journal, The Skeptical Inquirer, serves as the Awake magazine for the 19th century fundamentalist materialists in science. "As the late-eighteenth-century Italian experimenter Abbé Alberto Fortis observed in a letter chiding Spallanzani for his closed-minded stance on dowsing, '...derision will never help in the development of true knowledge'." (Becker, 1985, p. 331) Derision is a favorite CSICOPian pastime. See Dossey (1998c, 2000d) Roy, (2000) and Hansen (1992).

"In the past, these character flaws couldn't wholly prevent the recognition of scientific truths. Both sides of a controversy would fight with equal vehemence, and the one with better evidence would usually win sooner or later. In the last four decades [since 1945], however, changes in the structure of scientific institutions have produced a situation so heavily weighted in favor of the establishment that it impedes progress in health care and prevents truly new ideas from getting a fair hearing in almost all circumstances. The present system is in effect a dogmatic religion with a self-perpetuating priesthood dedicated only to preserving the current orthodoxies. The system rewards the sycophant and punishes the visionary to a degree unparalleled in the four-hundred-year history of modern science." (Becker and Selden)

"This situation has come about because research is now so expensive that only governments and multinational corporations can pay for it. [As I mention later, what is good about research in the field of Energy Psych is that it does not require this huge infrastructure.] "One of the features of

small science...is that it...can be done in the home. With the information provided, you will be able to check our small science findings for yourself and not need to rely on 'experts' to pass the truth down to you. This possibility, that allows the average person to check claims for himself, is an important milestone for consumer protection." (see Callahan, 1992, pp. 1-2)] The funds are dispensed by agencies staffed and run by bureaucrats who aren't scientists themselves. As this system developed after World War II, the question naturally arose as to how these scientifically ignorant officials were to choose among competing grant applications. The logical solution was to set up panels of scientists to evaluate requests in their fields and then advise the bureaucrats." (Becker and Selden)

"This method is based on the naive assumption that scientists really *are* more impartial than other people...In general, projects that propose a search for evidence in support of new ideas aren't funded. Most review committees approve nothing that would challenge the findings their members made when they were struggling young researchers who created the current theories, whereas projects that pander to these elder egos receive lavish support. Eventually, those who play the game become the new members of the peer group, and thus the system perpetuates itself...[M]ost research becomes mere water treading aimed at getting paid rather than finding anything new...[T]he urge to test a hunch, which is the source of all scientific breakthroughs, is systematically excluded [using the 'peer review purity of thought certification' method]." (Becker and Selden) (see Siepmann, 1999, 2000, 2001, 2003, Smith, 1997)

"There has even been a scientific study documenting how choices made by the peer review system depend almost entirely on whether the experts are sympathetic or hostile to the hypothesis being suggested. True to form, the National Academy of Sciences, which sponsored the investigation, suppressed its results for two years." (underlining added) (Becker and Selden) [The CICOPians did a similar, but worse, act in their "investigation" of Michel Gauquelin's discovery that some of the broad predictions of astrology about careers and the positions of various planets were actually true statistically. (Robert Anton Wilson (1986/1991), pp.45-48]

"If someone does start a heretical project, there are several ways of dealing with the threat...The simplest way to nip a challenge in the bud is to turn off the money or keep reports out of major journals by means of anonymous value judgments from the review committees...[again, the "peer review purity of thought certification" method]." (Becker and Selden)

"Successful academics are almost always true believers who are happy to curry favor by helping to deny tenure to 'questionable' investigators or by harassing them in a number of ways...As the conflict escalates, the muzzled freethinker often goes directly to the public to spread the pernicious doctrines. At this point the gloves come off...In extreme cases, government agencies staffed and advised by the establishment begin legal harassment, such as the trial and imprisonment that ended the career and life of Wilhelm Reich." (Becker and Selden, 1985, pp. 331-334. [For a vivid accounting of this sad affair see R. A. Wilson, 1986, pp. 3-46 and Dossey, 1998c]

"The scientific enterprise that started in the 1950s with such excitement and promise has grown into a scientific establishment that appears unable to cope with today's problems, except to advocate more and more of the same technology. [What I call the MOTS mode of thinking] The problem is not with science itself but with the fact that science is a human endeavor. Scientists are not always

logical seekers of the truth, as they are portrayed in the popular press, but human beings subject to the same failings as the rest of humanity." (Becker and Selden)

"The modern career scientist's business is one in which success is measured by the number of papers published. Maximizing this number leads to greater prestige, more grant funds, larger laboratories, and positions on decision-making committees. Unfortunately, it is much easier to get a paper published if it does not challenge the present orthodoxy. As a result, few career scientists are willing to look at issues that cast doubt on established beliefs...For the most part, science today has lost its most essential aspect-- the spirit of adventure..." (Becker and Selden) [Charles Tart has a website for scientists to "come out of the closet" about their mystical experiences and ideas, The Archives of Scientists' Transcendent Experiences (TASTE) <http://psychology.ucdavis.edu/tart/taste> and many scientists are "coming out" through the International Society for the Study of subtle Energies and Energy Medicine, ISSSEEM, Journal of Theoretics, Journal of Scientific Exploration]

"The paradigm that was in place in 1950 was based on the chemical-mechanistic concept of life...This view was reinforced until it became a dogma, the proponents of which claimed to know everything there was to know about life. This paradigm...ruled the medical profession as well, limiting both the methods that could be used to bring about a cure and our perception of the ability of the human body to heal itself." (Becker and Selden)

"As each technological advance entered medical practice, we found ourselves paying an increasing price of unexpected side effects...Because such unexpected side effects have required additional 'technological fixes,' we now find ourselves in a spiral in which technological applications are piled one atop another, with no end in sight and no cure for the patient...This radical change in medical practice [called energy or vibrational medicine] is deeply rooted in ancient concepts of life, energy, and medicine, and it includes a reaffirmation of the innate healing ability of living things..." (Becker and Selden)

"The chemistry of life has been revealed to be based upon the underlying forces of electricity and magnetism...The phenomenon of life is controlled by the same forces that have shaped the universe. From the beginning, life has been dependent on Earth's natural electromagnetic environment. Today this natural environment is submerged beneath a torrent of electromagnetic fields that have never before been present...[B]oth the human body electric and the Earth's body electric have been damaged by this alteration." (Becker, 1990a, pp. *xii-xiv*) For a fascinating and depressing description of the resistance that Becker experienced in his very exact and rigorous but unorthodox research read his "Postscript: Political Science". (Becker and Selden, 1985, pp. 330-347)

10. SOME HISTORY OF THE CURRENT PARADIGM BATTLE: The Dark Side of Current Scientific Orthodoxy

Around 650 B.C. in Greece, Thales of Miletus laid the groundwork for modern physics and biology. Hippocrates (500 B.C.) incorporated many of Thales' ideas into his philosophy of medicine. "Hippocrates ...realized that disease was not a single causal relationship between an external agent and a simple machine, but rather that each disease is the complex product of the agent and the body's reaction to it. 'Disease is not an entity, but a fluctuating condition of the patient's body, a battle between the substance of the disease and the natural self-healing tendency of

the body." (Becker, 1990a, p. 14) Too bad Pasteur didn't follow this approach. While modern physicians "take the Hippocratic oath" they ignore the Hippocratic wisdom.

Becker describes three wrong turns taken by modern medicine during its history:

1. It followed the authoritarian and erroneous concepts of Galen and ignored the empirically derived information and insight of Erasistratus, a remarkable Egyptian physician and scientist. "In many ways, Erasistratus was far ahead of his time. Had his ideas, which were essentially correct, gained acceptance, medical and biological knowledge would have progressed far more rapidly than it did. Unfortunately, his observations and ideas...were totally swept away by...Galen.

"Galen was, in most respects, the antithesis of Hippocrates -- he was absolutely sure of himself and his beliefs, arrogant, self-serving, and prone to falsehood if it served his purposes.[He was an early "CSICOPian"!][H]e proposed the attractive idea that for every disease there was a single cause and a single cure, which was eagerly adopted by physicians who, then as now, sought authoritarian infallibility...[his] 'system of medicine'...became the standard text and ultimately the overwhelming dogma that dominated medicine for the next 1500 years.

"Unfortunately, Galen was wrong. His ideas about anatomy were incorrect, and his teachings on physiology were based upon falsified experiments...While practically all the writings of Erasistratus were destroyed, Galen's writings have been well preserved.

"Galen succeeded by providing a comprehensive system of medicine mixed with pseudoscience that provided definite answers for both diseases and treatments. Though largely wrong, it carried a stamp of authority and effectively put a stop to any valid experimentation or questioning for the next 1500 years. Early attempts at logical observation by Erasistratus and the humanism of Hippocrates' 'art' were both submerged by the false dogma of Galen." (Becker, 1990a, pp. 14-16)

2. It bought into reductionism and the concept that living organisms were essentially chemical machines. "The emergence of Western civilization from the Dark Ages was primarily the result of one factor, the challenge to authority. In medicine and science, the first challenger was a man [Paracelsus] who was a strange mix of humanism, mysticism, [and] early scientific logic...Paracelsus had no respect for authority in any form....

"He stressed the fact that the body can heal itself, while the most that Galen's medicine could do was to delay healing or produce disastrous complications. Paracelsus foreshadowed the discoveries of modern antibiotics...Many of Paracelsus' beliefs and ideas...were actually profound insights into the nature of disease and physiology that had no precedents at the time...

"Paracelsus viewed the body as a whole organism, composed of many parts. Each part interacted with the others and was inseparable from the whole, which was greater than the sum of the parts...Several centuries before the rise of reductionism, Paracelsus saw the defect in reductionist philosophy and placed its future proponents among the 'ignorant'."(Becker, 1990a, p. 19)

Several Western scientific and medical pioneers explored what now is termed an "energy medicine" approach: William Gilbert was an early researcher into medicine, electricity and magnetism. Anton Mesmer, under the influence of Paracelsus' teachings, proposed that living things generated

universal forces that they could transmit to others through 'animal magnetism.' He began treating a variety of ills using magnetic therapy; because he was remarkably successful, he incurred the wrath of the medical establishment." (Becker 1990a, p. 20) Louis XVI appointed the then current version of a CSICOPian inquisition to get rid of "his kind."

"Hahnemann, building on Paracelsus' 'Law of Similars', constructed a complex system of medicine known as 'Homeopathy.'..." (Becker, 1990a)

"Throughout this period of scientific excitement, the argument between the mechanists and the vitalists heated up...Luigi Galvani stepped into this controversy...He was searching for proof of the electrical nature of the life force, and he believed that he had found it...Galvani termed this 'animal electricity,' and he postulated that this electricity was produced by the living body itself... Allesandro Volta...[h]owever... discovered that the electricity was actually produced by the junction between the two dissimilar metals...Galvani...actually *had* shown 'animal electricity' flowing from injured tissue...This later became known as the 'current of injury', which is an electrical current found in any injured tissue. But by that time Galvani had been so discredited that the idea of the current of injury was relegated to the status of an unimportant curiosity. Galvani, like Paracelsus, was far ahead of his time..." (Becker, 1990a)

"Emil DuBois-Reymond discovered that the passage of the nerve impulse could be detected electrically. Believing that he had 'identified the nervous principle with electricity,' he postulated that the nerve impulse was the passage of an amount of electrical 'fluid' down the nerve fiber... Hermann von Helmholtz had electrically measured the speed of the nerve impulse and found it to be very much slower than that of electricity in a wire..." (Becker, 1990a)

"In 1871....Julius Bernstein proposed an alternate chemical explanation for the nerve impulse. He believed that the ions...inside the nerve cell differed from the outside tissue fluid, and that this difference resulted in the nerve-cell membrane's being electrically charged, or 'polarized.'...The 'Bernstein hypothesis' ...has since been shown to be essentially correct, not only for nerve cells but for all cells of the body...The success of the Bernstein hypothesis resulted in the dogmatic view that this type of electrical activity is the *only* type permitted in the body. In this view, direct electrical currents cannot exist either within the cell or outside it, and externally generated electrical currents (provided these are below levels causing shock or heat) cannot have any biological effect...[W]hile there is now no doubt that Bernstein was correct and that membrane polarization is the basis for the conduction of the nerve impulse, *it did not necessarily follow that the nerve impulse is the only method of data transmission in the nerve, or that such membrane polarization is the only way that electricity can work in the body.* Orthodox science, however discarded such ideas as vitalism..." [*underlining added*] (Becker)

"Otto Lowei proved...that transmission of the nerve impulse across the synaptic gap is also chemical...As a result of Lowei's experiment, all traces of electricity and magnetism were firmly excluded from any functional relationship with living things." (Becker, 1990a, pp. 20-22)

Most of the early confusion was due to ignorance about the forms of electrical current: *Metallic Conduction, Ionic Current* and *Semiconductive Current*. (see Figure 10.1 from Becker, 1985, p. 93) DiBois-Reymond thought the nerve was a form of Metallic Conduction which was disproved by von Helmholtz. Bernstein, and later, Lowei, correctly proposed Ionic Current (ion exchange across

the membrane of the cell) as the mechanism of nerve cell operation. *The mistake here was to assume this was the only form. However, at the time, principles of semiconduction were unknown. The irony is the current arrogant and ignorant resistance among scientists to this concept.* "Ionic current is conducted in solutions by the movement of ions -- atoms or molecules charged by having more or fewer than the number of electrons needed to balance their protons' positive charges. Since ions are much bigger than electrons, they move more laboriously through the conducting medium, and ionic currents die out after short distances. They work fine across the thin membrane of the nerve fiber, but it would be impossible to sustain an ionic current down the length of even the shortest nerve. (Becker, 1985)

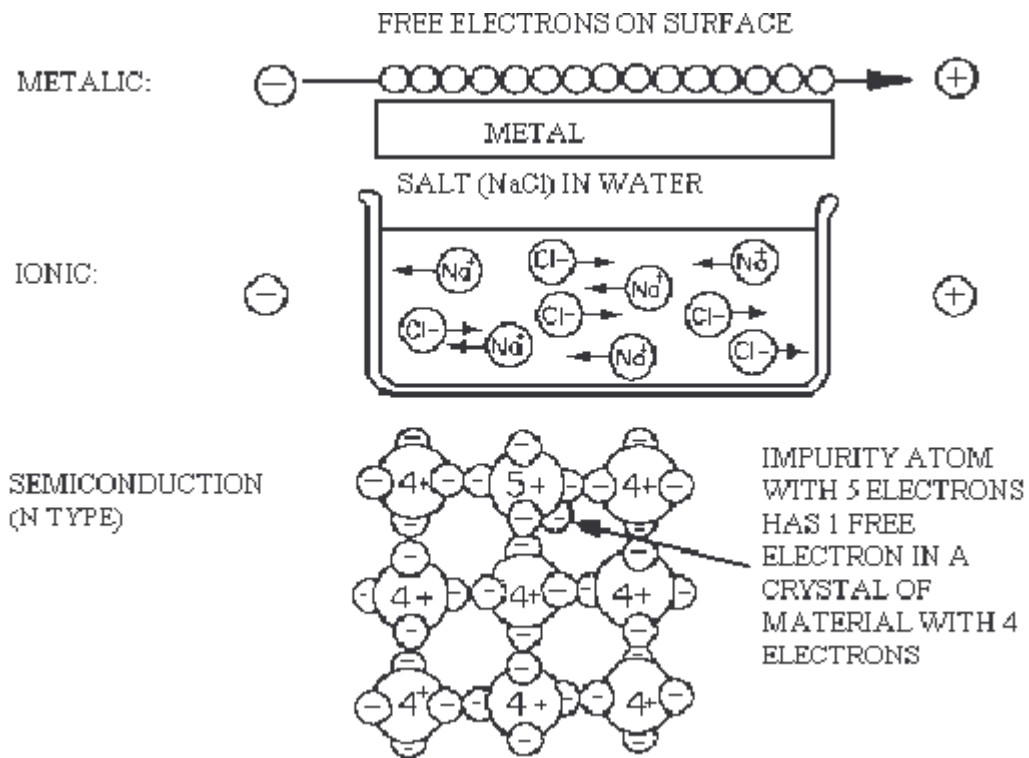


Figure 10.1. from Becker and Selden, 1985, p. 93. Three Ways of Conducting Electrical Current

"[S]emiconductors... are inefficient, in the sense that they can carry only small currents, but they can conduct their currents readily over long distances...Semiconduction occurs only in materials having an orderly molecular structure, such as crystals, in which electrons can move easily from the electron cloud around one atomic nucleus to the cloud around another. The atoms in a crystal are arranged in neat geometrical lattices. Some crystalline materials have spaces in the lattice where other atoms can fit...A negative current, or N-type semiconduction, amounts to the movement of excess electrons; a positive current, or P-type semiconduction, is the movement of these holes, which can be thought of as positive charges..." (Becker, 1985)

"Szent-Györgyi pointed out that the molecular structure of many parts of the cell was regular enough to support semiconduction...This idea was...expanded...in his 1960 Introduction to a Submolecular Biology...In it he conjectured that protein molecules, each having a sort of slot or way station for mobile electrons, might be joined together in long chains so that electrons could flow in a semiconducting current over long distances without losing energy..." (Becker, 1985, pp. 92-93) [the body seen as a Holonomic Polyphasic Liquid Crystal]

The modern fundamentalist scientists ignored this approach. Instead "[t]he physicists, biologists, and physicians were absolutely certain that the life force simply did not exist, and they all living things were simply chemical machines. They *knew* that life was simply the result of a chance, random events between chemicals, and that it would occur in a similar fashion wherever the circumstances were right. They *knew* that for each disease there was a single cause and a single therapy, and that the only valid therapy was either surgical or chemical. Finally, they *knew* that the living organism was simply a collection of structures, which worked chemically and were integrated by means of the central nervous system, with no involvement of electricity or magnetism." (Becker, 1990a, p. 25)

3. Turning Scientific medicine into Technological medicine. By putting all the R & D efforts and money into certain aspects of chemical and surgical technology "modern medicine has gone beyond scientific medicine to a new phase, that of technological medicine, based upon the applications of this [post WW II] technological revolution...[The irony is that] science had totally excluded electromagnetic forces from life, [but]...eagerly accepted these remarkable 'advances' without even questioning their possible biological effects...This technological revolution...has begun to show its defects. The medicine it has produced is increasingly complex, expensive, and inadequate. We have failed to find magic bullets for anything other than infectious diseases, and we are facing a spectrum of new diseases against which technological medicine appears helpless. The mechanistic view of life...proponents have confused the machinery of life with life itself, and in the process have managed to learn more and more about the machinery but less and less about life." (Becker, 1990a, p. 26)

"Gradually, a new scientific concept has emerged, one that has brought energetic systems back into biology and has begun to explain many...mysteries. In particular, these energetic mechanism have been shown to be the basis of many of the underlying control systems that regulate the complex chemical mechanisms." (Becker, 1990a, p. 27)

The tide is changing in medicine and psychology.

11. SOME ASSUMPTIONS OF ORTHODOX, WESTERN PSYCHOLOGY

(C.T. Tart in Tart (ed) Transpersonal Psychologies, Harper Colophon, 1975, pp. 61-111)

The following assumptions are largely implicit acts of faith, not subject to critical examination and questioning even at the present time. If we do not know that we assume something, we have no idea of the impact of the implicit assumptions unless confronted by a situation in which the consequences of the assumption are contradicted by some event or alleged event. As long as an assumption is implicit (operating outside our conscious awareness) we are unlikely to ever question it and so are greatly in the power of that assumption. This list is intended to get people to begin

questioning their implicit assumptions. These assumptions are all being questioned by recent thinking in transpersonal, energy-information psychology and theoretical physics.

11.1. ASSUMPTIONS ABOUT THE NATURE OF THE UNIVERSE

1. The universe was created accidentally or created itself or has always been around and there is no purpose or reason for the universe existing.
2. The universe is dead; life is only an infinitesimal, insignificant part of the universe.
3. Physics is the ultimate science, because physics is the study of the real world.
4. What is real is what can be perceived by the senses or by a physical instrument, and what can be perceived by the senses can be detected by a physical instrument.
5. Only the present moment exists; time is a linear process.
6. We can understand the physical universe without understanding ourselves.

11.2. ASSUMPTIONS ABOUT HUMAN NATURE

7. People are their bodies and nothing more.
8. People exist in relative isolation from their surrounding environment. They are essentially independent creatures.
9. People start life "fresh" except for limitations set on them by genetic inheritance, cultural environment and accidental happenings, all modified by their reactions to them.
10. People are completely determined by genetic inheritance and environment.
11. Even though we believe people are completely determined, in Practice we must act as if they have free will.
12. We have a rather good understanding of human history.
13. We understand the origin and evolution of human beings.
14. We can't expect too much from people/or there are no limits on people's attainments.
15. Each person is isolated from all others, locked within their nervous systems.
16. Psychological energy is completely derived from physical energy, as expressed in physiological processes in the body.

11.3. ASSUMPTIONS ABOUT OUR FUNCTION IN THE UNIVERSE

17. People have no function in a purposeless universe.
18. The only real purpose of life is to maximize pleasure and to minimize pain.
19. The universe is a harsh, uncaring, unresponsive place.
20. We are here to conquer the universe. (Making it happen vs letting it happen).
21. We are by far the supreme life form on earth, and are probably the only intelligent life form in the whole universe.
22. Lower organisms exist for our benefit.

11.4 ASSUMPTIONS ABOUT THE RELATIONSHIP BETWEEN MIND AND BODY

23. The body is a relatively passive servo-mechanism for carrying out the orders of the nervous system.
24. The physical body is the only body we have.

11.5. ASSUMPTIONS ABOUT EMOTION

25. Emotions are electrical and chemical shifts within the nervous system.
26. Emotions interfere with logical reason and make people irrational; therefore they should generally be suppressed or eliminated except for recreational purposes.

27. Emotions have no place in scientific work, or while they may motivate individuals, they must be filtered out of the final product.
28. Negative emotions are the inevitable lot of people.
29. There are no higher emotions; all emotions are basically self-serving and animal.
30. Play is for children.
31. Pain is bad and should be avoided.

11.6 ASSUMPTIONS ABOUT MOTIVATION

32. Desiring things is the basic motivation that keeps a person's life functioning and lack of desire for things is pathological.
33. The primary motivations affecting people are desires for power and desires for sexual pleasure, along with an avoidance of pain.

11.7. ASSUMPTIONS ABOUT LEARNING

34. Learning is a matter of permanent and semi permanent electro-chemical changes in the brain and nervous system.
35. Learning is a matter of accumulating knowledge.
36. Intellectual learning is the highest form of learning, and a person with a very high IQ has the potential to learn practically everything of importance.
37. Learning is a matter of taking in sensory impressions and applying cognitive processes to them.

11.8. ASSUMPTIONS ABOUT MEMORY

38. Memory is not very reliable; it is far better to depend on an objective record.
39. The only memory we have is of impressions in this life up to the present moment.
40. The only memories we have direct access to are our own.

11.9. ASSUMPTIONS ABOUT PERCEPTION

41. The only things there are to perceive are the physical world and the sensations from the internal operations of our body and nervous system.
42. The nature of our sense organs determines the nature of our perceptions.
43. Perception is somewhat selective and biased, but generally gives us a very good picture of the world around us.

11.10 ASSUMPTIONS ABOUT COGNITIVE PROCESSES

44. Reasoning is the highest skill possessed by people.
45. Developing the logical mind, one's reasoning abilities, is the highest accomplishment a person can aim for.
46. Extension of our basically sound knowledge and cognitive processes is the way to greater knowledge and wisdom.
47. Knowledge is a hypothesis, a concept in the mind, and there is no direct, certain knowledge of anything.
48. Philosophers are the ultimate authorities about the nature of knowledge.
49. Almost all important knowledge can be transmitted by the written word, and the written word is the least ambiguous, most accurate way of transmitting it.
50. Logical inconsistencies in the expression of something indicate its invalidity.
51. Fantasy is a part-time cognitive activity, usually done in our leisure hours.

- 52. When people agree with me they are being rational; when they disagree they are probably irrational.
- 53. Faith means believing in things that are not real or that you have no solid evidence for, myth has very little relation to truth.
- 54. Intuition is a word we use for lucky guesses, coincidences, or rational processes that are outside of conscious awareness but are nevertheless rational.
- 55. Symbols are nothing but physical objects with emotional meaning, or electrophysiological patterns within the brain.
- 56. Our beliefs and psychological experiences affect only ourselves, not the "real" world, except when expressed by motor activities.

11.11. ASSUMPTIONS ABOUT THE NATURE OF HUMAN CONSCIOUSNESS

- 57. Only human beings are conscious.
- 58. Ordinary, average people are conscious.
- 59. Consciousness is produced by the activity of the brain, and therefore the activity of consciousness is identical with the activity of the brain.

11.12. ASSUMPTIONS ABOUT ALTERED STATES OF CONSCIOUSNESS

- 60. Altered states of consciousness are simply a temporary reorganization of brain functioning.
- 61. Our ordinary state of consciousness is generally the most adaptive and rational way the mind can be organized, and virtually all altered states of consciousness are inferior or pathological.
- 62. A person who spontaneously goes into altered states of consciousness is probably mentally ill.
- 63. Deliberately cultivating altered states of consciousness is also a sign of psychopathology.

11.13. ASSUMPTIONS ABOUT DEATH

- 64. Death is the inevitable end of human life.
- 65. Physical death is the final termination of human consciousness.

11.14. ASSUMPTIONS ABOUT PERSONALITY

- 66. Personality is what makes people unique, skilled, worthwhile and gives them their sense of identity.
- 67. A sense of personality, personal identity is vital, and its loss is pathological.
- 68. The basic development of personality is finished and complete in adulthood, except in the cases of neurotics or other mentally ill persons.
- 69. A healthy personality is one which allows the individual to be well-adjusted in terms of his culture.
- 70. Normal adults have a fairly good degree of understanding of their own personalities.
- 71. Personality is a relatively unified structure in normal adults.

11.15. ASSUMPTIONS ABOUT SOCIAL RELATIONSHIPS

- 72. The selfish, neurotic, unreasonable actions of others are the major cause of our personal suffering.
- 73. No normal person likes to suffer.

74. Progress comes from improving society.

11.16. ASSUMPTIONS ABOUT SCIENCE AND CIVILIZATION

75. Scientific progress is cumulative.

76. Our civilization (and its psychology) is the greatest civilization that ever existed on this planet.

77. Our civilization (and our psychology) are steadily progressing.

78. An active, conquest-oriented approach is the way to make progress in understanding and controlling the universe.

79. Being a scientist and being a mystic are incompatible.

12. WILLIAM TELLER'S MODEL OF "HOW IT ALL FITS TOGETHER"

(Teller is Professor, Department of Material Sciences and Engineering, Stanford University. Teller, 1987, an edited direct quote)

"Until recently, science and traditional Western medicine have considered that living organisms operate largely by means of the following sequence of reactions."

Equation 1.

FUNCTION \Leftrightarrow STRUCTURE \Leftrightarrow CHEMISTRY

"When an organism was not functioning properly, the cause has been ascribed to structural defects in the system arising out of chemical imbalances. It was recognized that chemical level homeostasis may have been dependent upon a connection with a deeper level energy structure in the organism, but no clear discrimination of this connection was made. More recently, a growing awareness has developed of the interactions between chemical states and electromagnetic fields. Studies in neuropsychiatry show us that small electric currents between specific brain points give rise to the same behavioral changes that are observed with certain specific brain-stimulating chemicals. Small direct current (D.C.) electric currents (10^{-12} amp/mm² to 10^{-9} amp/mm²) applied to leukocytes in vitro have been shown to produce cell regeneration, while larger current densities were shown to produce cell degeneration. Such studies have been extended to enhance fracture healing in animals and humans. Thus, although we do not yet understand the detailed pathways whereby electric and magnetic fields couple into the cellular metabolism, it is clear that Equation I should be replaced by:"

Equation 2.

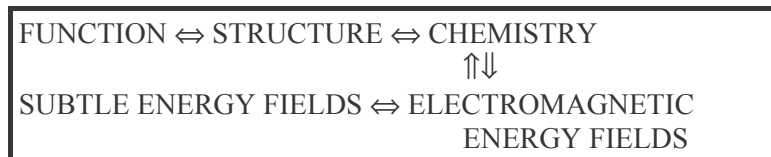
FUNCTION \Leftrightarrow STRUCTURE \Leftrightarrow CHEMISTRY \Leftrightarrow ELECTROMAGNETIC ENERGY FIELDS

"An illustration of Equation 2 is Wolf's law of bone structure changes, which states that if one bone receives a non-uniform stress for an extended period of time, that bone will grow new trabeculae in the exact locations needed to maximally support this new stress distribution. The physical strain field is manifested in fibers and collagen which are both piezoelectric, so that an electrostatic field is produced with specific orientation and polarity. This electrostatic field, with its associated micro currents, causes ion and colloid redistribution in the local body fluids to specific locations where agglomeration and gelation set in. These new semisolid structures age and calcify, eventually

forming the microstructures making up trabeculae. One can readily imagine the more subtle stresses of an emotional or mental nature setting the foregoing chain of sequences in motion."

"Equation 2 has an obvious defect in that it overlooks mental effects. Under hypnosis, the human body has exhibited truly remarkable feats of strength and endurance attesting to an unconscious mind/structure link. In aikido, Zen, and yoga disciplines, we see a conscious link between the mind and both structure and function. Recent studies in the area of biofeedback techniques show that directed mind cannot only control various autonomic body functions such as skin temperature and pain, but can also repair the body. Finally, on another front, modern psychotherapy has shown that certain chemical treatments influence mental states, and that certain mental treatments influence chemical states. The point is that "mental fields" are additional contributions that should be placed on the right side of the reaction chain given in Equation 2. Other fields, not yet clearly discriminated, also appear to play a part in this reaction chain. Let us label them all under the heading "subtle energy fields" and rewrite Equation 2 as:"

Equation 3.



"Equation 3 is a reasonable representation for a living organism, a cell, or a membrane. Each item in the reaction chain maintains its conditions of homeostasis via immediate support from the item on its right. The development of serious imbalance in any particular item in the chain leads, in time, to obvious disruption of homeostasis for the item to the left. Thus, to develop an early warning system concerning the chemical homeostasis of a biological system, a device must be created that monitors the electrical nature of the biological system. In order to gain information concerning future disruptions of the bioelectric system, the subtle energy fields of the entire biological entity must be monitored. At the moment, there is very little knowledge concerning the nature and character of those subtle energy fields, therefore electrical system monitoring must be used as a basis for early warning. This is a happy circumstance because our technical competence has grown significantly in this area over the past few decades."

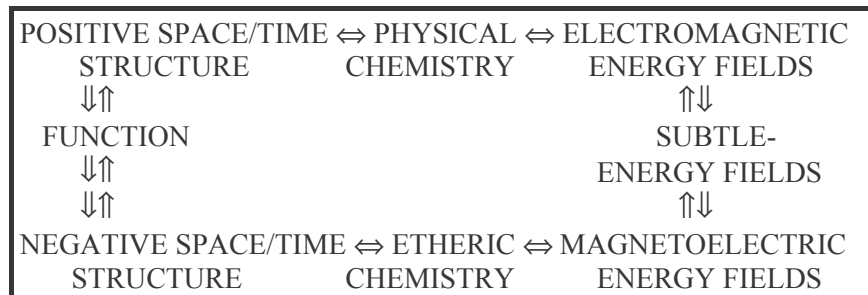
"A number of electrical devices are presently available for rapid diagnosis of the body's state of health and for the treatment of imbalances in that condition. Many holistic-health practitioners are beginning to utilize these devices, and it has become important to understand how they function on an electrical level and what they actually measure in the human body. Using basic information on the electrical properties and response behavior of both macroscopic and microscopic (acupuncture points) areas of skin, it has been possible to account for all the key characteristics of the three major diagnostic instruments on the market. One of these instruments, the Voll Dermatron, is also utilized in the selection of homeopathic remedies for the patient. It thus forms a narrow bridge across the chasm between the domains of electromagnetic energy and subtle energy shown in Equation 3. In order to strengthen that bridge and to eventually give it quantitative underpinnings, we need to gain a clearer understanding of the basic nature of homeopathy and how it relates to traditional Western medicine."

"One might say that it was the emphasis on disease rather than on health that split apart allopathic and homeopathic practice. The physical body reveals the obvious materialization of disease; the relationship to the more subtle aspects that relate to health is not so easily measured. Conventional allopathic medicine deals directly with the chemical and structural components of the physical body. It can be classed as a truly objective medicine because it deals with nature on a purely four-dimensional space/time level, and thus has developed much direct laboratory evidence to support its physiochemical hypotheses. This has occurred because the reliable sensing ability of both humans and instrumentation presently operates on that level."

"Homeopathic medicine, on the other hand, deals indirectly with the chemistry and structure of the physical body by dealing directly with substance and energies at the next, and more subtle, level. It must be classed as a subjective medicine at this time for the following reasons: 1) It deals with energy that can be strongly perturbed by the mental and emotional activity of individuals, and 2) there has not been any diagnostic equipment available to support the homeopathic physician's hypothesis."

"Both theoretical structure and an experimental laboratory for studying subtle energies are essential ingredients for the generation of a correct scientific foundation for homeopathy. A postulation concerning the former allows a testing via the latter, so that a bootstrap process can be invoked to inch our way towards the desired goal. Because of this, Equation 3 must be altered to the following form:"

Equation 4.

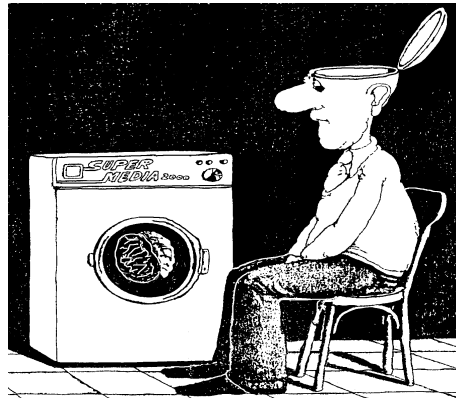


"Allopathic medicine follows the upper path between the subtle energy fields and the functioning state of the human, while homeopathic medicine follows the lower path between these two domains. In essence, discriminating between the subtle energies of Equation 3 leads to the series-parallel circuit of Equation 4, wherein two different levels of chemistry and energy operate in two different space/time frames."

"T[he] book ([Vibrational Medicine](#), 1988) by Richard Gerber, M.D., is an attempt to present a conceptual bridge between current allopathic medicine and future subtle-energy medicine. It is a broad-ranging book that tries to set a qualitative and somewhat speculative perspective. One does not need to agree with all the details given in this book to appreciate its overall synthesis. It is this overall synthesis of information, and this grand perspective, that Dr. Gerber hopes readers will take away with them."

"....[M]y [Tiller's] personal view of the bottom line,...is: We are all elements of spirit, indestructible and eternal, and multiplexed in the divine. We contain a unique mechanism of perception which is mind. In my theoretical modeling, mind consists of three levels--the instinctive, the intellectual, and the spiritual--and mind is postulated to function in a six-dimensional space lattice."

"This mind creates a vehicle for experience (a universe, a world, a body) and each person, as a spiritual being plus perception mechanism, invests in that vehicle which runs a continuously programmed course. The being is connected to the vehicle via the emotional circuitry. The stuff used for the construction of this vehicle or simulator is of dual or conjugate nature. One part, which is electrical in nature and travels at velocities less than that of electromagnetic light, is of positive energy and positive mass. It forms the physical part of the simulator. The other part, which is magnetic in nature and travels at velocities greater than that of electromagnetic light, is of negative mass and negative energy. It forms the etheric part of the simulator. The total sum of these two energies is zero, as is the sum of their entropies. Thus, the total simulator or vehicle is created out of what we call 'empty space,' the space of mind, via a fluctuation type of process. This vehicle world (simulator) is just the 'world of appearances and form,' the world of relative reality that we shape with our minds. Outside of that is the absolute! It is necessary to learn to penetrate the foibles of the 'relative' in order to appreciate the 'absolute.' However, all who read this book [Vibrational Medicine] are presently in the simulator and, when we talk about holistic health and a new medicine, it must be the medicine of that material, the simulator material. We know a great deal about one aspect of the simulator material (the physical) but very little about its conjugate part (the etheric). Now is the time to begin serious investigation of the etheric, and to develop an etheric material science to balance our present, physical, material science..." (Teller, 1987)



13. QUANTUM THEORY INTERPRETATIONS OF THE FUNCTIONING OF THE NERVOUS SYSTEM AND IMPLICATIONS FOR ENERGY/INFORMATION THERAPIES

[This section is very much in process. the primary sources are quoted without my translating them into intelligent lay person's English]

13.1. INTRODUCTORY THOUGHTS

This "Quantum" concept has been one of the buzz words used by many, some with very dubious justification. There exists "quantum healing," (Chopra, 1989) "quantum psychiatry," (Powell, 2002), the "quantum brain" (Satmover), "quantum nutrition," the "quantum self," (Zohar, 1990) the "quantum society," (Zohar and Marshal, 1994) and "quantum nail care!" (Dossey, 1999) Notwithstanding, the quantum concept is a major construct used by various attempts to explain consciousness. Some of the major researchers and theorists in the field are Hameroff and Penrose, Marcer, Ho, Mitchell, Pribram, and the brilliant researchers, theorists and practitioners of the Belgrade school: Jovanovic-Ignjatic, Rakovic, Rakic, Kostopoulos, and Koruga. The Balkan states and Russia are far ahead of North America in this area of research and practice. A related field of active research is that of "Neurotheology." (see the work of d'Aquili, Herzog et al, C.P. Johnson, Joseph, Newberg and Persinger, Rmachandran and Blakeslee, Zohar and Marshall, Beyles and Underwood among others). See also the Center for the Study of Religion and the Brain.

"[Philosopher David] Chalmers points out that even if we knew the activities of each and every neuron, synapse, ion channel, receptor, molecule, etc, in our brain at a given instant correlated with a given mental state, it still wouldn't tell us anything about experience, or about why we have an inner life.... Chalmers's 'hard problem' [concerned]...the nature of experience. What is our inner life, our experience, or 'qualia'? Chalmers concluded that experience is fundamental--an irreducible feature of reality like, for example, charge, mass or quantum spin. This is in line with a long history of panpsychist/ panexperiential philosophy. People like Leibniz in the 18th century and Russell, Whitehead, and Wheeler in this century saw the universe as being composed of fundamental units or events, each having a primitive psychological being. Whitehead's panexperiential view seems most consistent with modern physics. He said that consciousness is a process of events occurring in a wider, basic field of raw proto-conscious experience. Whitehead's events, which he called 'occasions of experience,' are quite comparable to quantum state reductions, as pointed out by the philosopher Abner Shimony. This suggests that consciousness may involve a self-organizing process of objective reductions occurring at the Planck scale." (Hameroff, 1997, p. 73, 76)

At any rate, using my simple minded (digital) computer analogy, the above researchers and theorists are working on the hard ware (wet ware!) that allows the observed/experienced mental and spiritual consciousness phenomena of the Upper Left (the soft ware?) to operate efficiently. Since the field of energy/information (both concepts are necessary. See Rubik, 1995a and b)) deals with these more subtle phenomena and since quantum theory deals with more subtle (compared to 19th century models of the universe) phenomena, the relationships between quantum theory and energy/information medicine/psychology theory and practice seems very fruitful. Thus, I dive into a field WAY out of my sphere of competence (psychology, social, educational, developmental etc.) to give some general background for future thought about the theoretical processes involved in energy/information practice.

13.2. SOME HISTORY AND EPISTEMOLOGICAL CLARITY ALA WILBER

13.2.1. THE FOUR PHASES OF WILBERS THINKING

(see www.integralworld.net)

"Ken Wilber's oeuvre can be divided into four phases (see his book The Eye of Spirit, 1997 and the extensive overview provided by Reynolds, 2004).

"Phase 1 (1977-1979), which he himself characterizes as his "romantic-Jungian" phase. Like many romantic philosophers and Jungian psychologists, he sees spiritual growth as a (complete or partial) return to a condition which existed in the past, but which has been lost during the process of growing up, c.q. cultural history."

"Phase 2 (1980-1982), in which he shifts to developmental psychology as larger context to integrate Eastern and Western psychology. Spiritual growth he now sees as something that comes after growing up. In other words, we have not lost God, we grow into Him, by a gradual process of development."

"Phase 3 (1983-1987), in which he refines his model of development over the years. Development is no longer understood as a homogenous process, in which the self passes through a number of stages respectively, but as a complex process, consisting of several lines of development (cognitive, emotional, social, spiritual, etcetera) and the self somehow has to maintain a delicate balance between these lines."

"In the years 1987-1995 he does not publish much, due to personal circumstances, primarily because his wife gets ill and dies in 1989. This period is chronicled in the book *Grace and Grit* in 1991."

"Phase 4 (1995-present), in which he adds a socio-cultural dimension to his model of individual development, and gives more attention to neurological processes that are involved in consciousness. With his image of the four quadrants (intentional, neurological, cultural and socio-economic) he demonstrates the interdependency of these dimensions, and the one-sidedness of views that base themselves on only one quadrant, and doubt the validity of the other quadrants."

13.2.2. PHASE FOUR CRITIQUE

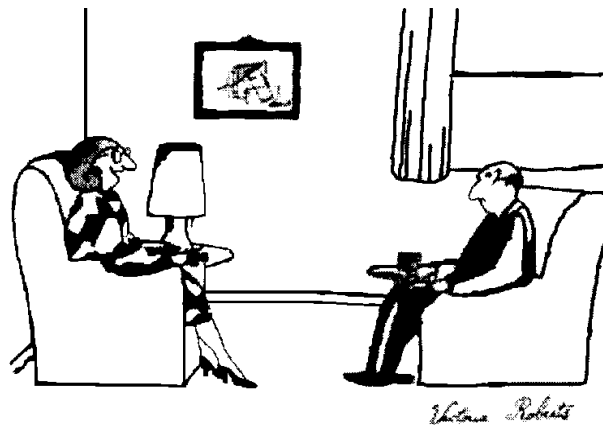
I just want to again point out that, in terms of Ken Wilber's (2000) four Quadrant Integral Model, the ideas in this section mainly deal with the more subtle aspects of the Upper Right quadrant. Whether or not they will eventually provide a bridge to the Upper Left quadrant domain remains to be seen. Certainly, the above mentioned researchers think so. In the early 1980s, when two physics concepts became popular (quantum theory and the holographic paradigm), (Wilber, 1982b and 1984). Wilber pointed out the problems in hitching spirituality and consciousness on to physics, no matter how advanced. Friedman's book (1990) titled Bridging Science and Spirit: Common Elements in David Bohm's Physics, the Perennial Philosophy [as laid out by Ken Wilber up to 1983] and Seth seeks to "integrate it ALL." Wilber's Marriage of Sense and Soul: Integrating Science and Religion (1998) argues for a more generic concept of science other than its current identification with specific subjects and methods of study. For example, the discipline of meditation

is just as rigorous as any scientific method and it discovers domains of reality that empirical (sense data) science can not. There is considerable debate about where "subtle energies" fits into this model since the UR quadrant is getting mighty full!

Ken Wilber's (2000) four Quadrant Integral Model (see figure below reproduced from section 6), looks at the Kosmos in terms of the Upper Left quadrant ("I"-Interior-Subjective-Individual-Intentional) and the Upper Right quadrant ("It"-Exterior-Objective-Individual-Behavioural) approaches to human functioning. The other two lower quadrants refer to collective approaches to human functioning (LL: "We"-Interior-Subjective-Collective-Cultural and LR: "Its"-Exterior-Objective-Collective-Social)

Interior	Exterior	
I UL Interior-Subjective-Individual Intentional	IT UR Exterior-Objective-Individual Behavioural	Individual
WE LL Interior-Subjective-Collective Cultural (worldspace)	ITS LR Exterior-Objective-Collective Social (system)	Communal or Collective
Left Hand	Right Hand	

Figure 13.1. The Four Quadrants of Knowledge about the "Kosmos" (the totality of reality)



*Don't worry, Howard. The big questions
are multiple choice.*

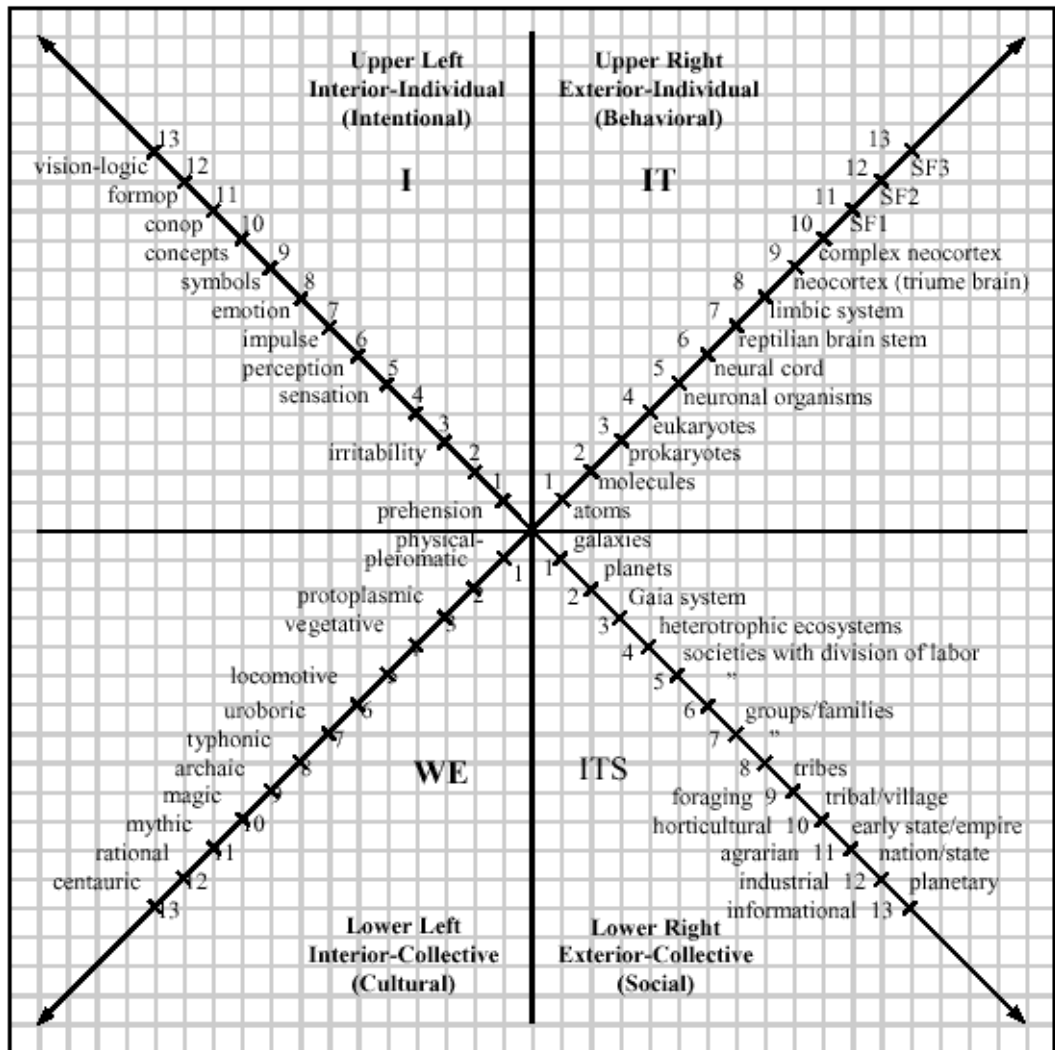


Figure 2. The Four Quadrants

Figure 13.2. Some Detail in the 4 quadrants. Figure 2 from Collected Works of Ken Wilber vol. 8

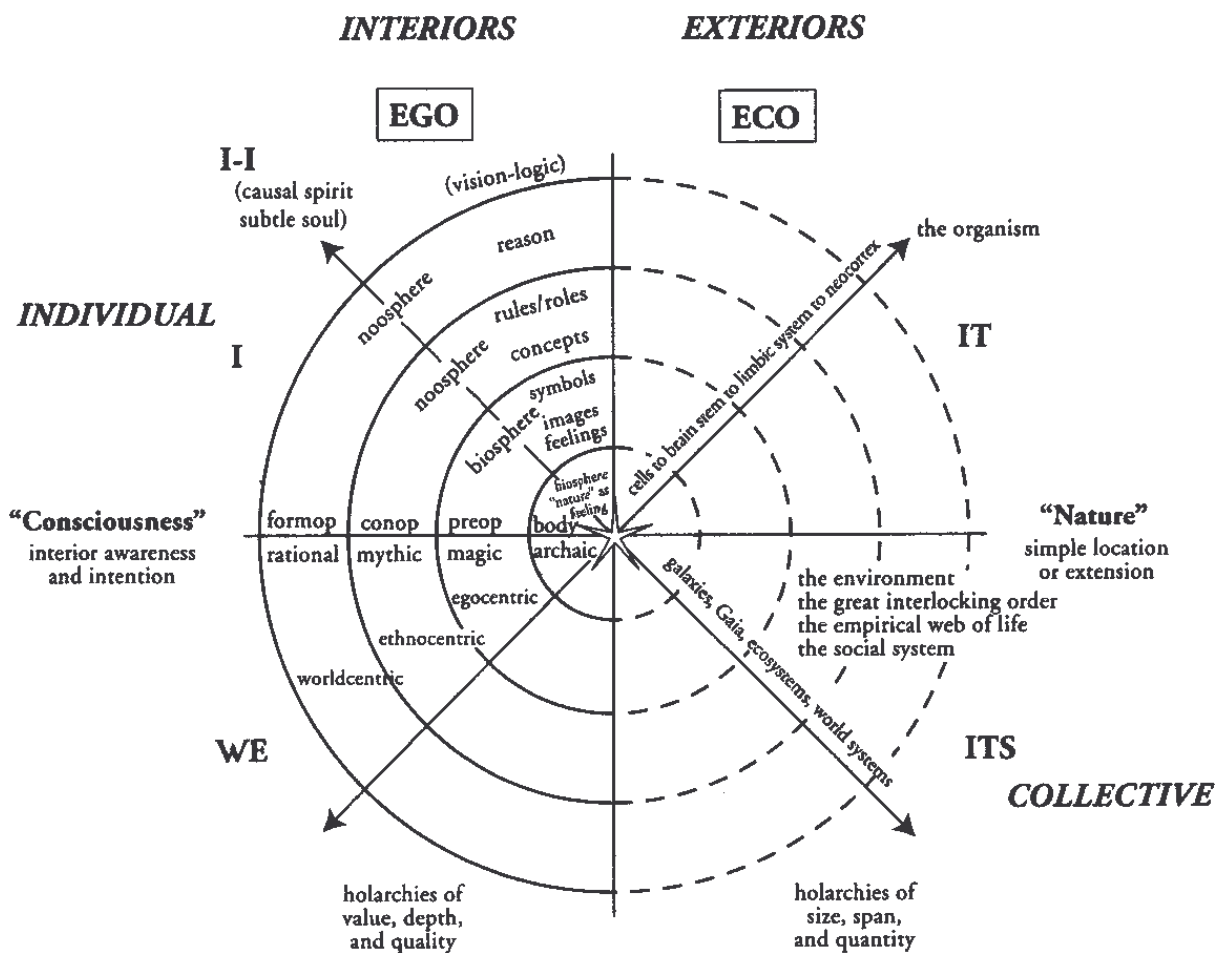


Figure 13.3. The Great Nest of Being and the 4 quadrants before modernisms collapse into right hand “flat land” by scientism.

"The perennial philosophy maintains that reality is a Great Holarchy of being and consciousness, reaching from matter to life to mind to Spirit. Each dimension [level] transcends and includes in junior dimension [level] in a nested holarchy, often represented by concentric circles or spheres." (Wilber, 1996, p.36) "Spirit transcends all, so it includes all. It is utterly beyond this world, but utterly embraces every single holon in this world. It permeates all of manifestation but is not merely manifestation." (Wilber, 1996, p. 38) "Human identity can indeed expand to include the All...The *ultimate depth* is an ultimate oneness with the All, with the Kosmos. But this *realization* is *not* given *equally* to all beings, even though all beings are equally manifestations of Spirit. This *realization* is the result of a developmental and evolutionary process of growth and transcendence." (Wilber, 1996, p. 39) "Spirit is *unfolding* itself in each new transcendence, which it also *enfolds* into its own being at the new stage. Transcends and includes, brings forth and embraces...unfolds and enfolds...[In summary] because evolution goes *beyond* what went before, but because it must *embrace* what went before, then its very nature is to transcend and include, and thus it has an inherent directionality, a secret impulse, toward increasing depth, increasing intrinsic value,

increasing consciousness. In order for evolution to move at all, it must move in those directions -- there's no place else for it to go!" (Wilber, 1996, p. 41)

One of Wilber's main criticisms of modern thought and science (especially psychology) involves the misapplication of the truths and advantages of "The Age of Reason" (The Enlightenment). This revolution freed thought from mythic dominator hierarchies and recognized a much broader view of reality and the beginnings of the scientific method; an "all-Quadrant" worldview. However, we became limited to only using the empirical-scientific world view and outlook. He refers to this as "Flat Land" in that all the Great Hierarchy of being and consciousness ends up reduced to only one level and method. All thought became reduced to the right hand half of the 4 quadrants (Wilber, 2000, pp. 70-71)

Thus, during "The Age of Reason" (The Enlightenment), the fields of knowledge expanded, and all four quadrants were acknowledged, but the many levels within each quadrant were eventually collapsed and not recognized; they were flattened.

One of the confusions which became our modern science occurred when the philosophies (and later psychology's) of modernity recognized that the UL quadrant inner states had correlates and correspondences to the UR empirical observables. The unfortunate result was to say that these observable empirical correlates can be treated as the same as the inner experiential states. Then modern psychology went one step further and, in the psychology of the empty organism, denied the inner even existed; certainly if they did exist they were of no importance and wasted valuable time and talent when researched (the most extreme was that of B.F. Skinner and his radical behaviorist followers). For instance, since the observable events of Rapid Eye Movements (REMs) and certain patterns of brain waves occur during dreaming, the error was to say that we can learn all we need to know about dreams by studying the observables. The study of the inner world of dreams became, for a while, not worthy of scientific study.

Who first used the word *Psychology* is still debated but the New Princeton Review of 1888 defined it as "the science of the psyche or soul." Most historians of psychology see the progress of psychology as a rescue from contamination by concepts of soul or spirit. Gustav Fechner developed what now is called "psychophysics" which involves the precise measurement of the relation between a physical stimulus and the individual's response to it. This was a milestone in the evolution of a truly SCIENTIFIC psychology. However, Fechner's real interest was captured in his 1835 book titled Life After Death with the opening lines: "Man lives on earth not once, but three times: the first stage of his life is continual sleep; the second, sleeping and waking by turns; the third, waking forever...his life interwoven with...universal spirit...a higher life." (Wilber, 2000, p. viii-ix). Thus, the originator of the ultimate in psychological precision measurement with his Elements of Psychophysics, had a firm ground in mysticism, a fact that has been suppressed in modern psychology as an unfortunate lapse of reason by an otherwise sane man. Ken Wilber says "the roots of modern psychology lie in spiritual traditions, precisely because the psyche itself is plugged into spiritual sources...and the study of psychology ought ideally to be the study of *all* of...body to mind to soul..."(Wilber 2000, pp. ix) "Fechner's approach to psychology was thus a type of *integral approach*: he wished to use empirical and scientific measurement, not to deny soul and spirit, but to help elucidate them." (Wilber 2000, p. xi) (I refer to this as "spiritual behaviorism" by which I mean that the philosophy has concrete behavioural results, not "mere" ideas.)

The history of psychology has been described as: First it lost its soul, then its mind, then consciousness. Gradually it regained consciousness, then found its mind and now seeks to recover its soul. The last recovery started in earnest in the 70's with the foundation of the *Association for Transpersonal Psychology*, an outgrowth of Maslow's and others *Association for Humanistic Psychology*. The Association for Transpersonal Psychology has yet to be acknowledged in the overwhelming percentage of academic psychology texts. Indeed, I maintain that North American academic psychology remains rabidly phobic about the subject of soul/spirit and what have you. When I talk to introductory psychology classes, I ask them "Does psychology deal with or acknowledge the essence of the human animal?" They don't even know what I'm referring to. So I then go into my favorite rant and introduce them to energy psychology and related approaches which are my current passions since they have both important philosophical, theoretical and applied contributions to make.

Today, a discipline is respectable and listened to the extent it can precisely measure what it is talking about (assign a number system). But numbers do not have inherent characteristics of value (one number is not more valuable than another; simply bigger or smaller). To reduce all reality to a quantitative issue collapses the value hierarchy (chain of being) to the sense data empirical level (lowest level). When higher dimensions or levels are represented on lower ones they necessarily lose something. For example, a three dimensional sphere reduced to two dimensions produces a series of circles. Worse still, when the sphere is cut at different angles through the center (basically the same operation in three dimensions), it will be represented by very different results in two dimensions: everything from a straight line through various ellipses to a circle and back. Thus, the operation in three dimensions appears different in two, while in really real reality (3D in this example) they are the same basic procedure but produce wildly different results in the lower (2D) reality. (see the funny and enlightening allegory Flatland: A Romance of Many Dimensions by E.A. Abbott for the original story of this dilemma; Alexander Dewdney has computer created a 2-D planet named Astra, Omni, May, 1983, p. 118).

Because empirical science remains the prestige term, we mistakenly say that if something can not be scientifically proven, then it is not true, real, valid, important etc. There still exists too much invidious comparison among the various disciplines which claim to be scientific as to who is the most scientific/empirical. Science is a very useful and necessary method of gaining empirically based knowledge. It is increasingly less relevant as one moves beyond sense data. You end up using a 3 dimensional framework for studying N dimensional phenomena (Wilber in his most recent work says it becomes a "flatland.") You never see these phenomena "in the flesh"; at best all you see are certain effects and manifestations of the trans-empirical. Beyond that, the sense data are silent. You can not map higher dimensions point for point to a lower dimension and thus no data in the lower can capture all the higher. You may, in your attempt to do so, merely end up confusing the map with the territory. Sense data may be an indicant of higher order phenomena (e.g., a verbal description of an experience indicates that something is going on inside but does not capture it, prove it, etc.). This is true also trying to use just words to describe a sense experience, i.e. describe the taste of a strange fruit using only words. Other methods must be used such as metaphor, analogy, or an "experiential display" ("Here. You taste it").

An earlier (phases 1 and 2) formulation from Wilber (1979, 1982a, 1983) is outlined in the following tables. He uses the "3 eyes" metaphor to discuss the levels of epistemology and methodology. (see Edwards, 2000 for an analysis of this approach)

13.2.3. THREE MAJOR DOMAINS OF KNOWLEDGE WITH THEIR ASPECTS OF PROOF AND TYPES OF INTERPRETATIVE "CATEGORY ERROR"

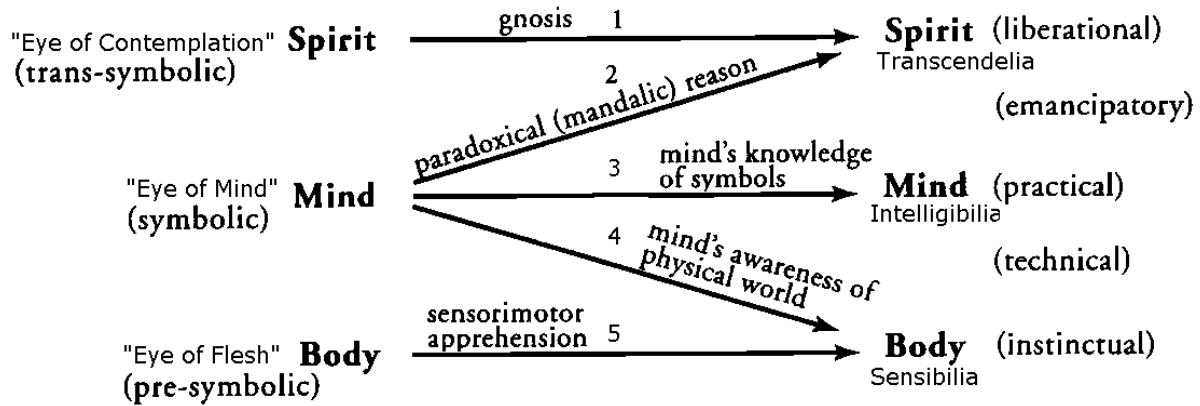
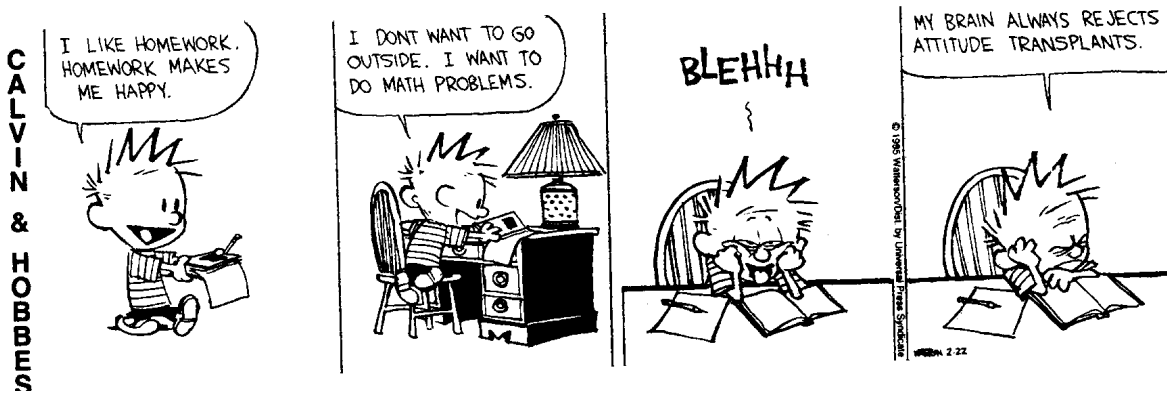


Figure 13.4. A diagram of the 5 general modes of cognition



Empiricism: "Eye of Flesh": we know by using our senses and can generalize from specifics using induction. Truth is given about our daily life or, using the more elaborate approach of science, about more subtle aspects of physical reality. The final court of appeal in determining truth is to sensory experience or its extensions.

1. Proof Involves:

- a. Training/education of the "eye of flesh": For everyday purposes the senses as given are usually sufficient but most specialties require special sense abilities. You learn the methods of research for a given discipline (observation techniques, measurement devices, use of equipment, experimental techniques etc.) and the general rules of evidence for science. This has been codified as "the scientific method."
- b. Ability/knowledge gained as a result of training: Ability to function in and gain knowledge about the physical world (from common sense to advanced scientific and technical knowledge). Knowledge of how to design, conduct, evaluate, refine and communicate research to answer specific questions; how to define, measure, and specify relevant variables (e.g., operational definitions); how to communicate research to other similarly trained researchers so that they can replicate studies.
- c. Social/consensual outcome: Acceptable level of agreement on everyday definitions of physical reality. Scientific/discipline consensus as to what is "real" and "appropriate" for research. Replication of research, exchange of results/methods/ideas between members of the discipline through organizations, meetings, conventions, schools, journals, newsletters and informal networks. Building on others' work.

2. Interpretative Category Errors: The authoritarian/dogmatic assertion that ONLY sense data provide a valid basis for proof (Locke, Quine, the "positivists") and can ALONE generate all knowledge (scientism). Anything not amenable to this criterion is not true or valid. It is interesting that in our culture the word "non-sense" has such negative connotations-it reflects our empirical prejudice.

- a. Applied to the mental domain: Since you can not sense others' thoughts, reasons, beliefs, images, etc. they are not real and do not exist (radical behaviorism). The truth of a logical or mathematical statement or the meaning of a play do not lie in the mere sensing of them. Their truth lies beyond sense data although the senses are used to relate to them (e.g., computing the percentage of use of various colors in a painting to determine its meaning/worth or counting the number of symbols in a math equation to determine its usefulness are "senseless" acts.)
- b. Applied to the transcendent-intuitive domain: Since you can not sense others' experiences/intuitions of God, Brahman, the ultimate, angels and other archetypal symbols etc. (i.e., any of the claims of mystics) they are not true, real or valid. It is true that they are "non-sense" (not discoverable by the physical sense organs) but they are "experience-able" (possibly using higher "senses", "third eye").

Rationalism-Idealism: "Eye of Reason": Rationalism says that if something is not logical/reasonable (follow the rules of some logical system) it is not true. Clear, precise logical deduction is the final court of appeal. For idealism the "self evident truths" of the mind are the true reality.

1. Proof Involves:

- a. Training/education of the "eye of reason": Learn the conventions of the symbol systems of language, math, logic, reasoning principles of proof/form/order/consistency/analysis/synthesis. Learn the conventions of aesthetics and criteria of quality.
- b. Ability/knowledge gained as a result of training: Able to communicate using the symbol system, able to generate psychological/social/philosophical/artistic systems and works, new systems of thought, demonstrate logical truths, new aesthetic domains.
- c. Social/consensual outcome: Agreement on what is real/true/valuable/beautiful; general quality/value agreements. Social values/norms/rules/conventions. Philosophical/psychological/aesthetic systems (schools of thought and practice) with their attendant social arrangements. General cultural/social belief systems.

2. Interpretative Category Errors: The authoritarian/dogmatic assertion that ONLY reason (rationalism-Descartes, Leibniz) or thought (idealism-Hegel, Berkeley, Schopenhauer, Kant, Bergson) are valid and can alone generate all knowledge.

- a. Applied to the sensory domain: the attempt to deduce scientific fact or sensory evidence without recourse to observation. Scholasticism--read an authority like Aristotle rather examine the object directly. Solipsism -- there is no way to prove that physical reality exists since it could be just my creative imagination/thought.
- b. Applied to transcendent-intuitive domain: Attempt to reduce intuitive thought to a strictly logical method (e.g., "artificial intelligence" research). Derive value statements from purely logical thought. Attempts to develop logical proofs of God and the ultimate.

Transcendentalism/Intuitionism/Mysticism/Gnosticism: "Eye of Contemplation": Truth can be known by immediate apprehension. The final court of appeal is revelation, direct intuition of the truth or the ultimate.

1. Proof Involves:

- a. Training/education of the "eye of contemplation": Taking up a valid spiritual discipline and practice; bypassing the other two eyes to allow the "still small voice" to be manifest. Various meditation practices, monasticism, religious disciplines, etc.
- b. Ability/knowledge gained as a result of training: Able to transcend the limitations of senses and thought (still the mind); illumination, revelation, experiencing archetypal forms, transcendence of limitations of lower levels, unity of all, "no boundary" state, inexpressible bliss, "the peace that passes all understanding".
- c. Social/consensual outcome: Intuitive and direct communication/communion/affinity with others and the universe; communal visions. Formation of religious communities, ashrams, religious organizations, belief systems, movements to convert others to join in the practice.

2. Interpretative Category Errors: The authoritarian/dogmatic assertion that ONLY revelation and intuition are valid and can alone generate all knowledge (similar to idealism, e.g. Berkely maintained that the physical universe was an idea in God's mind and thus did not disappear when one was not thinking of it). The "Guru trip"--everything the leader says or writes is absolute truth and not to be questioned.

- a. Applied to the sensory domain: Literal interpretation of sacred works regarding scientific and sensory domains, not acknowledging that all words about the ultimate contain paradox/contradiction and so must be treated as metaphoric and poetic attempts to express the inexpressible ("Creation Science" version of evolution/history/origins of the universe etc.; doctrine of the illusion of matter-"maya"; misinterpretation of the origins of disease such as in Christian Science; the cast system of India; saying that sex is evil when it is just a biological fact and thus on a lower level of the hierarchy).
- b. Applied to the mental domain: Much of esoteric religious writing, dogma and ritual read or performed without intuitive understanding of the underlying meaning ("mere ritual"); thought/belief which does not agree with the "authorities" is heresy; confusion of a social structure and ideology with the divine; using logical reasoning capacity as a proof of spirituality; words and thinking can lead to "heaven" or "hell".

As you will notice when you read through these tables, there is much disagreement within any domain let alone between domains. However, all valid systems agree that the three "strands" for the proof of an assertion are necessary (education, ability/knowledge, consensus) and all are involved in interpretation (model and theory building) which mediates between the knowledge gained and the social consensus aspects. (Edwards, 2000)

An understanding of the above distinctions and definitions can be of considerable value. The distinction of the three basic ways of gaining knowledge, methods of proof and "category errors", when properly applied and properly interpreted, help purify each domain to work best on the level of the ontology (Great Hierarchy of being and consciousness, dimension or level, "holarchy" of

"holons," Great Chain of Being) most appropriate to it and stop making arrogant and invidious comparisons. We can stop the fighting and get on with the "search for truth."

Science can help philosophy and religion by separating out "eye of flesh" matters and eliminating the confusions with the matters of the eyes of reason and contemplation; it can liberate philosophy and religion from trying to be pseudo sciences (climb on the prestigious band wagon of "hard science"). Empirical science will never prove the truth of a logical statement or that God "exists".

Philosophers can stop trying to deduce both empirical facts and spiritual truths. Reason alone is not capable of grasping transcendent realities and so should quit trying to rationalize the ultimate.

In regard to valid religion, any issue that can be answered by science can be dispensed with in any significant discussion of philosophical meaning and religious inquiry. Even if all the scientific/empirical questions were answered, the fundamental issues would remain.

The "battle between science and religion" is, in this system, reformulated to a battle between the "bogus" and the "genuine", not between "lower" and "higher." "Genuine" science and religion means "experientially verifiable/refutable"; "bogus" means "dogmatic, non experiential, non verifiable/refutable". "*There is bogus or pseudo-science just as much as there is bogus or pseudo-religion*, and the only worthwhile battle is between genuine and bogus, not between science and religion. Accordingly, both genuine science and genuine religion are allied against pseudo, non-experientially grounded, dogmatic knowledge-claims (which infect all domains)...Here, 'science' refers not to any particular domain, high or low, but to a methodology based on experiential evidence and non dogmatic assertions, a methodology we want to apply to all genuine knowledge-claims on all levels." (Wilber, 1984a, pp. 21-22) See Wilber (1998) for an extended discussion of these concepts.

13.3. LARRY LaSHAN'S ELUCIDATION OF THE CONCEPT OF REALITY and TYPES OF EXISTENCE

An extended quotation from Alternate Realities: The Search for the Full Human Being, Ballantine Books, 1976

13.3.1. THE GENERAL CLASSES OF REALITIES

excerpts from Chapter VIII, pp. 70-95

(p.70) "So far I [LaShan] have been using the terms 'Mode of being' and 'invention-discovery of reality' and, indeed, the term 'reality' itself, without careful definition. It has been necessary first for us to wander around the concept, explore it, and poke at it a little before a definition would have enough solidity and 'feel' to it to be anything more than an abstract set of words. To attempt a formula or classification too early in the exploration of a new way of looking at things leaves it empty of meaning for most of us. For this reason I [LaShan] am following a sort of zigzag course in this book, first looking generally at the concept, then defining it more precisely, then looking at some specific areas, such as its usefulness for everyday life and its implications for our social behavior. It now seems time to attempt some definition of these terms."

"In order to try to make as much sense as is possible now (with our present limited knowledge) of modes of being, I [LaShan] will start with a description of the general classes these fall into. I

[LaShan] will go on to discuss the individual variations within each class, and then describe some of the confusions that occur due to inadequate understanding of a mode of being we are using, or due to mixing up the general classes and using concepts from one of them while we are functioning in another."

"We do not, at this time, know all, or how many, general classes of modes of being there are potential for human beings. We do know of four and something of the basic nature of each of these. I [LaShan] will term these (p. 71) the sensory modes of being, the clairvoyant modes of being, the transpsychic modes of being, and the mythic modes of being."

"Each of these classes is a way of structuring what is out there and in here. Each has a clearly defined set of laws and a very great and profound set of implications of these laws. Each is self-consistent, organically organized, and nothing can occur while one is using it that is contrary to these laws and implications. Each of these can enable us to accomplish certain goals and to answer certain questions. Each is irrelevant to certain other questions and goals, and simply does not connect with them. Each has room within it for a great deal of individual variation in the interpretation of the reality and in its implications for behavior. Each satisfies certain parts of our needs, and when an individual does not use one of them with a whole heart, fully accepting its validity and reality, that part of him remains undernourished and his whole being is stunted in its development."

13.3.1.1. THE SENSORY MODES OF BEING

"Adapted primarily to biological survival, the sensory modes structure reality with basic attention to defining differences, boundaries, separations, similarities, and relationships between 'things.' Essentially, they are oriented toward what can be clearly defined as an entity or unitary thing, and are adapted to things perceived as out there rather than in here. They are concerned with separating, contrasting, and defining things in space and time. Their basic laws (basic limiting principles), within which all occurrences must happen when reality is structured in this way, include the following:"

- "1. All valid information directly or indirectly comes from the senses.(p.72)
2. All events happen in space and time.
3. All events have a cause.
4. Causes occur before events.
5. Events in the past can be remembered or--least theoretically their effects observed, but cannot be changed.
6. Events in the future can be--at least theoretically changed.
7. Objects separate in space are separate objects; events separate in time are separate events.
8. All activity--movement--takes place through space and takes measurable time units to occur.
9. Action (movement or change of movement) takes place only when one entity is in direct contact with another.
10. All objects and events are composed of parts that can be--at least theoretically -- dealt with separately.
11. When objects or events have similar parts, they can be placed in classes for a specific purpose and the entire class can be thought of and dealt with as if it were one object or event. This can also be done with classes of classes of objects or events.

12. This is the only valid way to regard reality. All other ways are an illusion."

"As can be seen from this partial list of basic laws, the sensory modes of being are ideally suited to dealing with objects and events that can be observed with the senses or with devices that, like the microscope and telescope, extend the senses. If you wish to accomplish a physical result--invent an air-conditioning device, raise more food on an acre of land, repair a type-writer, or travel to Paris--these are the modes of being most adapted to the problem. If, on the other hand, you wish to deal with matters completely out of the range of the senses, even with extension devices, you are not going to get very far using it, whether we are talking about electrons or thoughts. You will gain (p. 73) a certain amount of ground by treating these things as if they were within the general sensory range, and then will find that to go further you will have to change the structure of the way you are organizing reality until it no longer fits the basic limiting principles of the sensory modes. When, for example, your data leads you to the fact that electrons move from one position (orbit) to another without crossing the space between them, you realize that you are dealing with a mode of organizing reality that is far different from the sensory modes."

"Ideally adapted to asking and answering questions starting with 'how' and 'how to,' the sensory mode is completely irrelevant to questions starting with 'why' or to questions of value and moral judgment. It can tell you how to kill or cure, but not which is 'right,' 'moral,' 'good.' It cannot tell you when to kill or cure, any more than it can answer the question of why an object has mass. (The best answers you are going to get to that question are either statements about how much mass it has, statements about how its mass will affect its activity, or if you press hard, the statement that it has mass because it has inertia. If you ask why it has inertia, the answer is ['Right, you guessed it'] that it has inertia because it has mass.)"

"As with other valid modes of being, however, when used for the purposes it is relevant to, the sensory modes of being function very well in allowing us to accomplish these purposes. The tremendous achievements of science in the past two centuries or so may be legitimately viewed as largely due to the fact that scientists began to use this mode purely in their research. Once they separated it out from other modes so that in scientific research it was used without being mixed with and contaminated by other ways of organizing reality, gigantic strides were made in analyzing large segments of reality, as perceived in this way, and consequently similarly large strides were made in the control and distribution of matter and energy."

"The primacy of the sensory modes lies in their (p. 74) adaptation to biological survival. Without them neither a human being nor a human culture can survive very long. An outside threat to the body, or the need to urinate, tends to quickly bring us back to them from any of the other classes of modes we may have been using. The Indian mystic Ramakrishna has said that under the most ideal conditions a person cannot survive outside of them for more than twenty-one days."

"As with any other valid mode, the basic limiting principles imply a very great number of specific facts and relationships, potential techniques and their effects, etc., that must be worked out by patient study. It is very similar to the situation in plane geometry where a limited number of axioms, the equivalent of the basic limiting principles, imply a very large number of theorems. The equivalent of the facts and relationships, that can be found if you are patient enough to work them out. It is pretty hard to see the theorems when you just look at the axioms. It is equally hard to see the steam engine and the jet plane when you look at the basic limiting principles of the sensory

mode of being. Both theorems and steam engines are implied by, and potential in, the axioms and their relationships in the same way."

13.3.1.2. THE CLAIRVOYANT MODES OF BEING

"The clairvoyant modes are adapted to a direct experiencing of the oneness of all being and to the essential unity of the cosmos rather than--as in the sensory modes--its separation into parts, into objects and events. The entire universe, including oneself is perceived as a 'seamless garment' in which *all* divisions and separations, all boundaries, are arbitrary and in error. No object or event can be conceived, in these modes, as separate, isolated, or cut off from the all of being. The universe is one vast flow-process not in space *and* time, but in a unitary space-time continuum. (p.75) and *is* that continuum. These modes have entirely different basic limiting principles from the sensory mode and these principles have entirely different implication. To continue the previous analogy to plane geometry both its axioms and its theorems are different."

"The basic limiting principles of the clairvoyant mode of being include the following:

- "1. All objects and events are part of the fabric of the total of being and cannot be meaningfully separated from it. The most important aspect of any object or event is that it is a part of the total ONE and it is to be primarily considered under this aspect. Considering it under any other aspect is an error.
2. Boundaries, edges, and borders do not exist. All things primarily are each other, since they are *primarily* one.
3. This lack of boundaries applies to time also. Divisions of time, including divisions into past, present, and future, are errors and illusion. Events do not 'happen' or 'occur,' they 'are.'
4. Since no object or event can be considered in itself without considering the all of space-time, the concepts of good and evil do not have meaning. Any application of them would automatically mean the application applies to the total context of being, to everything. The universe cannot be categorized in this way.
5. All forces or situations in space-time, or places where the fields of activity are weak or strong move with a dynamic harmony with each other. The very fact of the universe as a flow-process universe means it moves with harmony.
6. One can only be fully in this mode when one has if only for a moment, given up all wishes and desires for oneself (since the separate self does not exist) and for others (since they do not exist as separate either) and just allows oneself to *be* and therefore to *be with* and *be one with* the all (p.76) of existence. To attain this mode, one must--at least momentarily give up doing and accept being. Any awareness of doing or of the wish to do disrupts this mode
7. Valid information is not gained through the senses, but through a knowing of the oneness of observer and observed, spectator and spectacle. Once this complete oneness is fully accepted there is nothing that can prevent the flow of information between a thing and itself
8. The senses give a false picture of reality They show separation of objects and events in space and time. The more completely we understand reality, the less it resembles the picture given by our senses, by the sensory mode of being
9. This is the only valid way to regard reality All other ways are illusion."

"These modes are apparently primarily adapted to dealing with processes that are completely out of our sensory range. They are not adapted to biological survival; one would not want to cross a busy

while using them. Uniting with a truck is not good for you biologically speaking. At the present time they are mostly used by three classes of individuals or, to put it more correctly, by individuals attempting to attain three types of experience. These are theoretical physicists working with [quantum and] relativity theory, trying to understand further how reality works; mystics attempting to experience their oneness with the universe; and clairvoyants attempting to obtain paranormal information. (Telepathy, clairvoyance, and precognition are the usual divisions we use to discuss paranormally gained information, information that did not arrive through the senses or from the extrapolation of information that did. Looking at ...atoms... will make it clear that this sort of information is impossible in the sensory modes of constructing reality and normal in the clairvoyant modes.)"

(p.77)"...[W]hen [quantum and] relativity physicists and mystics describe the way the universe works from their viewpoint, how they construe or invent-discover reality, it is not possible from the content of their statements to say whether any one of the statements was made by a physicist or by a mystic. They are clearly talking about an essentially identical construction of reality, and it is the same one that clairvoyants say they are using when they describe how reality appears to them at the moment they are attaining paranormal information."

"Not only can one not distinguish the theoretical physicist and the mystic by the content of their statements (when they are talking about the nature of reality), it is also clear that they cannot be distinguished by the structure of their statements. The structure of a statement is a reflection of the structure of the world as the speaker perceives it. It makes no sense ; in another mode of being...." (see Wilber 1982b, 1984b)

(p.78) "As with the other general classes of modes of being I [LaShan] am describing here, the clairvoyant modes are adapted to filling part of our human needs and where we do not use it with a full acceptance of its validity, that part of us remains undernourished and unfulfilled. It is our need for a sense, a knowledge, of our solid connectedness with the totality of whatever is, a knowledge that we do not float unconnected in the cosmos but stand firm on the basic rock of the universe. Without this, there is always somewhere a sense of alienation and a need to somehow act to strengthen and cement our anchor ropes to the world. As I [LaShan] shall discuss later, the difficulty is that we mostly attempt to do this in the sensory modes, which are not adapted to the problem, and no matter how hard we try in it we do not succeed and can only continue to try harder in a hopeless endeavor. This tends to evolve to disastrous personal and interpersonal situations."

"Certain feelings can only be strong and lasting in us when the part of our nature satisfied by the clairvoyant modes of being is fulfilled. These feelings include serenity, peace, joy, feelings characteristic of the mystic who uses both sensory and clairvoyant modes, certainly not characteristic of the rest of us. Every widespread religion has started with a mystic experiencing and (p. 79) communicating both modes. In its early stages, each of these religions stressed both equally. (The most well-known Western statement is 'Render unto Caesar that which belongs to Caesar and render unto God that which belongs to God'). Presently, however, each religion fell prey to the basic statement in all modes of being that it represented the only valid way to construe reality. This usually took the form that the sensory modes were the only valid way (there are exceptions, such as some Eastern groups who opted for the clairvoyant modes as the only valid way), and as the organization of the religion developed in this manner it regarded with more and more suspicion its mystics who attempted to return to both modes as being of equal importance. The statements of the

religion as to the necessity of both were less and less heard, even though they were repeated daily. They tended to degenerate into rituals with the full meaning unperceived. (Listen, if you will, to a Catholic Mass with fresh ears, as if you had never heard it before. Explore its meaning as a new statement and experience. Then look around you and see how others in the church hear and experience it. You will see what I [LaShan] mean.)"

"The clairvoyant modes are adapted to fulfilling that part of us that needs meaning in our existence. It is only when we fulfill this part of us that we can serenely experience meaning in our lives and *know* that we are at home in the universe and that it is a good home for man."

"Often we can only see a need clearly when we remove the possibility of satisfying it. Part of our need for meaning is fulfilled by our membership in the human race, in our knowledge of the oneness and on-goingness of humanity, and in our connectedness to the cosmos through it. This is not a thing we are conscious of very much, and as we go about our daily tasks we do not think about it particularly. But remove it and we can feel the difference. Picture, then, the situation in which you *know* that ten years after your (p.80) death, the entire human race will be sterilized. No more children will ever be born and there is simply no possibility of averting this catastrophe. No matter what task you do or how you *think* you regard it as something purely of the moment, everything would be changed. If you milk a cow, deliver the milk, are an administrator, a writer, an actor, or a carpenter, your work would have undergone a tremendous change for you. The *meaning* would have gone out even though you were never aware it had been there. There now could be no possibility of ever satisfying in this way that part of you that the clairvoyant modes of being enable you to solve. With the sure knowledge of this, life and all its possibilities would be gray indeed, no matter how successful we were at what we had thought was the real purpose of our job."

13.3.1.3. THE TRANSPSYCHIC MODES OF BEING

"Less is known about the transpsychic modes than is known about the other major classes of modes of being. This is partly due to the fact that in the esoteric schools it was frequently confused with the clairvoyant modes and not usually comprehended as a separate class. The following remarks about these modes are more speculative in nature than the comments about the other three major classes of modes."

"In these modes, objects, events, and the self are not perceived as separate from each other, as in the sensory modes, or identical with each other, as in the clairvoyant modes. Rather, they are seen as separate, but flowing into a larger One and with no clear boundary from it. The example of the wave and the ocean has sometimes been used. The wave curling toward the shore is certainly conceived as a separate entity. There is, however, no clear demarcation line between it and the ocean, and the forces and stresses of one affect the other. A similar example might be the arms and legs (p. 81) of the body. Again, they are separate but with no clear separation lines and with such an interplay of needs, supplies, pressures, and forces that they cannot be meaningfully separated. If the arm is removed from the body, the arm is dead and the body maimed and distorted."

"In the transpsychic modes, all objects, entities, and events are perceived as related to the total One of the cosmos in this way. Each entity is separate enough to be able to be aware of its own wishes, which is not true in the clairvoyant mode, and connected enough to be able to sometimes communicate these wishes to the total One, which is not true of the sensory modes. This, then, is the

mode of being in which intercessory prayer is possible; in which, so to speak, one toe can urge the body to increase its repair systems working on another, damaged toe."

"As a further example, one might conceive of a bay of an ocean being conscious of itself as a separate entity and also being conscious of itself as an inseparable part of the ocean. If it knows that another bay is being damaged--say its temperature is becoming higher than it should be--the first bay might, by single-minded force of will, attempt to communicate to the ocean at large the need to bring its immense resources to bear on the problem, to--let us continue this strange analogy--bring from its depth a cooling current."

"A famous British archbishop (Temple) wrote, 'When I pray, coincidences start to happen. When I don't pray, they don't happen.' It is this kind of event we are discussing here. In intercessory prayer, the part (the self, the person) attempts to bring the great homeostatic forces of the whole (the universe, God, nature) to the aid and repair of another part that is perceived as damaged. Usually this is done by a trained single-mindedness of prayer, a total one-pointing of the total part in an attempt to get the signal, the wish, through to the whole."

"In the sensory modes, intercessory prayer is non-sense. There is simply no way it can work. In the (p. 82) clairvoyant modes, it is impossible. If I wish for something for you, then already there are two of us and, as this is forbidden, the mode is disrupted and destroyed. If pray for something for myself, I have also disrupted this mode by (1) separating myself from the rest the cosmos, and (2) visualizing a future in which change could take place. Only in the transpsychic mode is intercessory prayer reasonable, appropriate, and possible."

"The basic limiting principles of the transpsychic modes of being include:

1. Each object, entity, or event is a separate unity but has no clear demarcation line with the organic integral unity that makes up reality.
2. There are tremendous forces in the cosmos that can sometimes be brought to bear on a local part or situation.
3. These can be brought to bear by an absolute single-mindedness of purpose on the part of one "wave" toward the condition of another "wave."
4. Space is real and "exists" but is totally unimportant. Parts of the whole are separated, but since they are also connected through being parts of the same One, this does not matter.
5. Knowledge of other parts can come from two sources.
 - a. From observation of, as in the sensory modes.
 - b. Through being a part of the whole and so perceiving other parts through the whole.
6. From the viewpoint of the individual part, there is free will of each sentient part. From the view point of the whole, all actions that the parts will take are already decided and their results recorded.
7. Since whatever is done to one part affects the whole, an ethical principle is built into the universe. If one part moves another toward greater harmony with the whole, all of the whole--including the part that took the action--benefits. (p. 83) If one part moves to disrupt the harmony (hurt it, damage it, stunt its becoming) between another part and the whole, the disruption affects the all of being, including the part that took the action. Whatever action you take affects you also.

8. Good and evil exist. Anything that moves a part toward its fullest development and fullest integration with the whole is good. Anything that prevents or moves against fullest development of the part and its fullest integration with the whole is evil. In the long run, the terms fullest development of a part and fullest integration with the whole mean the same thing. In the short run, they may not.
9. This is the only valid way to regard reality. All other ways are illusion."

"In the transpsychic modes, intercessory prayer of both a positive (good) and negative (evil) nature is possible. In order for it to hold the possibility of accomplishing any results at all, the individual must be using the mode completely, *know* that this is the valid construction of reality. It also takes a complete single-mindedness of purpose where the entire organism or the part is focused on one purpose and nothing else exists in the field of consciousness. This last takes both very strong motivation and extensive training. Given these two, however, it is in this mode that the occasional, very strong miraculous healings (where the healing is beyond the healed individual's own self-repair systems' ability) appear to happen. Whether or not the reverse of such healing, 'cursing,' also occurs is not clear, but they seem, at this point in our understanding, theoretically to be possible."

"Feelings generated by these modes include awe, humility, and a sense of the greatness and holiness of the One that makes up reality. True religious feeling in the sense of awe and reverence apparently rests on the use of these modes. They are irrelevant to the sensory and the clairvoyant modes. (p. 84)"

"The transpsychic modes are also the basis of the ethical guideline of the Christian 'Do unto others as you would be done by,' and the Hebrew 'What you would not wish done to you, do not do to others.' (It was this last sentence that the great Rabbi Hillel said contained all Jewish law. 'All the rest is commentary.') In the East, the idea that whatever action you took with respect to others also affected you in the same direction was at the basis of early Hindu teachings. When, however, this point proved too abstract for most people, it was simplified and translated into the sensory modes. There it became the doctrines of reincarnation and of karma: Whatever you do in this life will be done to you in another. This is probably a fair example of what happens when a basic limiting principle or a valid concept is taken from one mode of being where it fits naturally, into another where it does not fit and causes all sorts of logical and semantic problems."

"It is in the transpsychic modes that the terms good and evil, right and wrong, are valid, and it is here that we find the moral imperatives and guidelines for our behavior. In the sensory modes these aspects do not apply. An action works or does not work. In the clairvoyant mode, everything is as it should be and again the terms do not have meaning. The clairvoyant modes give us the *reason* for living, the sensory modes give us the techniques. It is the transpsychic modes that give us the guidelines, the ethics and moral structures that give shape to our lives."

13.3.1.4. THE MYTHIC MODES OF BEING

"The mythic modes of being are the modes used in play, art, and in the dream. They are reflected in the myths and legends of a culture. They have been widely reported in the study of primitive cultures and at one time were believed to be the only reality perceived and (p. 85) reacted to by these cultures. Later study showed that this was far from true. These cultures, as ours, primarily

used the sensory modes and often, as does ours, confused them with mythic basic limiting principles and techniques."

"The mythic modes are particularly useful in creativity, as they lead to new combinations and to new possibilities of sets of relationships between entities and events. In its own forms and used for the purposes for which it is valid, it is a necessary and effective mode of being. When confused and mixed up with the sensory mode, it leads to such pseudo sciences as astrology, numerology, and voodoo."

"The basic limiting principles of the mythic mode include the following:

1. There is no difference between perception and symbol, object and image, thing and name. Each is, and can be used as if it is, the other. 'Objective' and 'subjective' cannot be differentiated. There is no difference between in here and out there.
2. Anything can become identical with anything else or stand for anything else once the two have been connected. Once this connection has been made, time and space cannot break it, but an appropriate act of will, correctly expressed, can.
3. Each part of a thing is the equivalent of the whole. If you break up an object or event, each of the parts equals the whole.
4. To control the part is to control the whole. To know the real name of something is to have power over it. To manipulate the symbol of something is to manipulate the thing it stands for.
5. Space is determined by the connections between things and events. If they are connected (and therefore identical) space between them does not exist. If they are unconnected, space cannot (p. 86) connect them. This is irrelevant to sensory space or to geometric space.
6. Time is determined by the connections between events. If two events are the same event, time cannot separate them. If they are unconnected, time cannot connect them. This is irrelevant to clock or calendar time.
7. All events start with a specific act of will. To explain an event is to show the connection to this act of will which, in itself, needs no explanation and is inexplicable.
8. There is a substance that all things and people have to varying degrees that determines their effectiveness, their ability to influence events. It can be gathered and redistributed by appropriate behavior. Its names include 'mana,' 'wakenda,' 'mani-tou,' 'power,' 'baraka.' It is a sort of material 'energy' that affects things and determines the course of events. It can be used for good or evil; in itself it is neither black nor white, but gray.
9. There is no such thing as accidental. Everything has meaning and is charged with meaning. Since part and whole are one, to understand the smallest part is to understand the whole and vice versa.
10. Birth and death are a change from one form of existence to another. They are, as are sleep and wakefulness, two similar phases of the same being.
11. This is the only valid way to interpret reality."

"Since early Greek times there has been a widespread tendency to explain perceptions and actions made while in the mythic mode by translating them into the currently popular philosophy of the sensory method of perceiving-reacting to reality. Although thinkers as far back as Plato warned against this and pointed out that this was a valid mode in itself, the tendency still (p. 87) continues. The problem here is not that much cannot be learned from this sort of translation, but that its

implication always is that the sensory mode is the only valid way of organizing reality and that the mythic mode is somehow primitive and unrealistic."

"The crucial aspect of this way of inventing-discovering reality lies in the relationship of what, from the viewpoint of the sensory reality, would be separate objects and events. In the mythic reality, any two objects or events that are perceived as associated are not parts of a larger unity, but are different aspects of it. Each affords a contact with, a hold on, the total. The fingernails of a man may be used to make a doll that will be heated. The man will then have a fever. An Indian peasant woman who is sick will leave on the road a rag she has had bound around the ill part. If someone picks it up, they will have the illness as well as the rag and the woman who left it will have neither. If you change a part of your being in a positive way-- a new deodorant, for example -- your whole being and your relationships will change in this way. If you wash the knife that gave you the wound, the wound will be clean. If you change your name, you change the course of events that affects you. If you name a new make of automobile after a powerful animal, the car will behave as if it had these attributes and the owner will also have them. The name of an aircraft or ship affects what happens to it. If you treat the flag of a country reverently, you are treating the country reverently. Treat the flag without reverence and you had better watch out for your neighbors. If you were born at a particular time, that time and you are permanently associated. Its characteristics are yours for the rest of your life."

"Space and time are filled with the connections of the aspects of unified objects and events and this is their only importance. No distance can separate the man from his discarded fingernails and they are as potent for influence on the man years after they had been discarded as they were immediately afterward. The (p. 88) time of your birth is as potent an influence seventy years after (and two continents away) as it was seventy seconds after you were born."

"Nothing is objective or subjective; what is, is real. Thoughts, attitudes, feelings are just as effective as actions. Indeed, actions without the proper and relevant thoughts and attitudes are ineffective. Mix this and the sensory reality and you have alchemy. Separate out the mythic reality in the same field of endeavor and you have chemistry."

"The value and strength of these modes lies in change, development, and creativity. With anything permitted to be an aspect of, a unity with anything else you connect it with, all sorts of new combinations are possible. Nothing is forbidden, all relationships are potential. With no holds barred in how you connect things and alloy- them, new ideas, insights, and possibilities are infinite. In children's play (and in the play of those fortunate adults who have retained this ability), anything can be anything and new combinations can be arrived at; similarly in the dream. Indeed, it is in play that children train their creative abilities. It is the research scientist, the artist, the writer who has the ability to play with ideas and perceptions who make the real advances and contributions. 'My object in life,' wrote the poet Robert Frost, 'is to make my avocation my vocation. And we know that anyone who succeeds in this will do very well at his vocation.'"

"The necessity for these modes for human beings is seen particularly in two ways. First, it is used in every culture and time we know of. Every group of functioning human beings we know of use it extensively. Second, we can see what happens when we prevent one use of it: the dream. In the dream we use primarily the mythic modes. We now have the technical ability to prevent people

from dreaming, but to permit dreamless sleep. When we do this, the person undergoes profound negative personality changes and becomes psychologically quite ill...."

(p. 90) "What in the mythic reality is an attribute of something, in the sensory reality becomes its way of reacting under specific conditions. Thus, the inflammability of a body does not, in the sensory modes, mean that there is a special substance (e.g., phlogiston) in it, but signifies its reaction to oxygen: the solubility of a body refers to its reaction to various liquids under different conditions. What is an attribute of something in mythic thinking becomes a complex set of relations in the sensory mode of being. This applies also to the concept of energy. In mythic thinking it is an attribute. In the sensory reality it is a set of relationships."

"In the mythic modes, every action exists on a higher level of being as well as its own. Playing with dolls is not just playing with dolls. It is also living out the daily action of adult behavior. The actions of the adults is a living out of the action of the gods and the myths. Action is given its validity by its being a part of larger patterns of action. An action or event is perceived as meaningless when one cannot perceive the larger platform on which it is an actor, when one cannot perceive the larger script it is acting out. We know, however, that the platform and script are there even if we cannot perceive them."

"Nothing is arbitrary in the mythic modes: nothing occurs by chance. Everything has meaning and is charged with implications and power. Things, however, may look arbitrary since it can be hard to trace the connections between the various parts of a unity as these connections from the viewpoint of the sensory modes, range over objective and subjective, past and future, thing and symbol until they come to that one, arbitrary act of will underlying the whole thing that neither needs explaining nor is explainable."

"As the sensory mode tends always to the general, to the understanding of the general laws that underlie (p. 91) each separate event, the mythic modes tend toward the individual. Each thing and event is charged with meaning, is unique and important. The world is full of specialness and newness due to this uniqueness. The child's eye is filled with wonder and possibility as long as this mode is perceived to be as valid as any other. When we teach the child that play is inferior to work, that the mythic modes are invalid, he becomes blasé, the shining newness goes out of things, and the color and possibilities that underlie his creativity are lost."

"In play, art, and in the dream we use the mythic modes. With no limitations as to what may be combined with what, the artist ranges freely over the levels and potentialities of being and his new combinations and relationships are often the guideposts for the insights of the scientist."

"Essentially, the mythic modes seem to serve a vital function in keeping us fresh and alive to the excitement and wonder of our being in the world. They keep us *interested* in our lives, curious, and creative. When we do not use these modes, we become blasé, bored, uninventive, unmotivated. 'All work and no play makes Jack a dull boy' is an insightful and valid maxim. Anyone who looks seriously at his or her own dreams (or own play) is surprised and delighted at his own creativity. The mythic modes keep the world charged with meaning and as fresh as this morning sunrise seen through the eyes of a child. Without them the sunrise, work, our daily lives, and even sex is a dull affair."

"The mythic modes seem to serve as a sort of psychological adrenaline that prevents the boredom, the alienation, the *anomie* of the French sociologists, the *accidie* of the Catholic Church, which are other names for the apathy and lack of interest and motivation we suffer without them. Literally, as long as we are able to play we are never bored. Without the use of these modes we undergo serious psychological deterioration--as we have seen in the experiments in which dreaming is prevented. We can call this deterioration *anomie* and alienation as do the sociologists, *anhedonia* (p. 92) (lack of ability to become involved in and enjoy life) as do the psychologists, or apathy and boredom as ordinarily term them, but these are names for the same thing."

13.3.1.5 SUMMARY

"These four classes of modes of being--the sensory the clairvoyant, the transpsychic, and the mythic--are the ways of inventing-discovering reality of which we are clearly aware at this time as necessary for the fullest development of human beings. We must accept the validity of all four and live in them in order to give our total being the nourishment it needs. In the rest of this book [LaShan discusses] various aspects of our potential for each, what happens when we reject the validity of one or more of them, and the effect of this rejection on our personal and social life"

(p. 93) "I [LaShan] have been writing here of four major classes modes of being, four ways of being at home in the universe, and of the fact that human beings, to achieve their fullest humanhood, need to accept and use all four. These are a part of our organic needs, and unless we use them all, we leave part of us undernourished and stunted and pay a high price in our development. The next question that naturally arises is: 'If all this is true, how much of each of these does a human being need? How much of each do I need?'"

"There can be, I [LaShan] believe, no specific answer to this. Each person is different and his or her needs are different from those of any other person. The combination of the four modes of being that will be most fulfilling for one person will be far from this for another. Each of us must question ourselves and must experiment in order to find the particular combination of the four that is most fulfilling. In addition, there is every reason to believe that different combinations are needed at different periods of one's life."

"We are far from any real understanding as to how to precisely answer the question of 'how much (p. 94) needed,' except that it is an individual matter and varies for the individual. Our real problem at this time comes long before this question. Our problem at present is to come to grips with the idea that there is more than one class of valid ways to construe reality, that these four, at least, are equally valid, and to learn to experience all four. Only after we have solved this problem can we come to the next one of determining the proper balance of them for each of us."

"Within each general class of modes of being there is, of course, room for very great individual variation. In the sensory mode, for example, we can come to major differences in interpretation of facts and in decisions as to how it is best to behave, even though we are structuring reality in essentially the same way. Out of our personal background and our experience we each learn to interpret what we perceive in an individual way and to react uniquely. To this I [LaShan] can only say fervently, 'Thank God!' Any system of development that led us all to agree, to perceive and react in an identical manner, would lead to a robotic horror of a world."

"There are a tremendous number of variations of the interpretation of reality contained in the sensory modes of being. Although they all follow the same basic limiting principles, they are made different by varying constitutional factors and different experience. They are also made different by varying amounts of accurate and inaccurate information and by varying levels of precise and sloppy thinking. A major factor in the difference is the tendency to mix into our evaluation of reality different amounts of concepts and data from other modes of being than the sensory ones."

"We can state, however, that any human individual who biologically survives very long uses the sensory mode. Within that, the man from ancient Egypt perceived reality quite differently from the modern person. And modern people, as we know well to our joy and our sorrow, our gain and our loss, differ tremendously (p. 95) in the ways they perceive-react to reality. The sensory modes indeed give a very wide range for variation within the boundaries of their basic limiting principles."

"These differences are also present in the other general classes of modes of being. It may be true, in a figurative way, of those who are also at home in the clairvoyant reality that 'All mystics speak the same language and come from the same country' but mystics differ very widely in personality and in their interpretation of what they perceive and how they react in this basic class of ways of construing reality. Mystics are, as a group, certainly in better shape as human beings and nicer people to share the planet with than are those who just function in the sensory reality, but they are by no means identical."

13.3.2. STRUCTURAL AND FUNCTIONAL EXISTENCE (pp.153-161)

(p. 153) "Wehave....two kinds of real things that exist in very different ways. One kind exists steadily whether or not anyone knows it is there. We....call these structural entities, and if someone puts one of them....in a closet and goes away and gets hit by a truck and no one in the world knows it is there, it stays on in the closet until either the house burns down or someone discovers it. The other kind of thing we....call functional entities and these are real and exist only insofar as someone is using them or thinking about (p. 154) them. They exist very sporadically. Obviously, when we say that a thing exists, we mean something quite different when we are talking of functional entities than when we are talking of structural entities."

"Are there ...examples of this strange kind of thing that we could use to clarify the situation a little? One of the most widely used is the square root of minus one. This is generally shown as $\sqrt{-1}$. This term more simple than it looks at first. A square root just means a number that multiplied by itself (squared) will give a particular figure. Thus, two times two equals four. Two is the square root of four since, multiplied by itself, it gives four. If we write ' $\sqrt{4}$ ' we mean 'two,' since the figure ' $\sqrt{\quad}$ ' means 'square root of.' Since three times three equals 9, then $3=\sqrt{9}$. Three equals the square root of nine."

"The square root of something means a number that multiplied by itself gives us that something. Obviously, if there is no number that multiplied by itself gives us X, then there is no such thing as the square root of X. X does not exist."

"The square root of minus one (-1) is very useful in a wide variety of mathematical systems. It is widely used and important. So we ask, What is it? What number multiplied by itself gives us minus one?"

"We then find out that there is no such number. It has to be one, since one times one equals one and no other number will give one as the result of multiplying it by itself. But a number is either plus (+) or minus (-). Let's try all the possible combinations. Minus one (-1) times minus one (-1) = plus one (+1) (I could show why this is so, but take my word for it unless you have mathematical training. And if you do have this training, you already know.)"

"Plus one times plus one equals plus one. So there no such number as $\sqrt{-1}$, the square root of minus one. No number, multiplied by itself, equals minus one. However, $\sqrt{-1}$ is widely used in mathematics and much of the engineering that went into building the last airplane you rode in would have been (p. 155) impossible without it. It is real, does it exist? It clearly exists and functions when the mathematician is using it. Outside of that, it doesn't. You may or may not be happy with this answer, but I'll wager it's the best one you are going to get."

"Further, you can't break it down into parts. (The symbol for it you can, but not the square root of minus one.) You can't even ask, with any hope of getting an answer, what it is, just what it enables you to do....."

"A decimal point or any mathematical point also has all the characteristics of a functional entity. It has no length, breadth, or thickness. (The ink on the paper does, but that's just a visual sign to you that a mathematical point is at that place.) Therefore, it cannot exist in the way structural entities exist. Misplace one in your bank account and see what it does to the relationship between the bank, your financial situation, and yourself. Anything that can cause that much trouble must exist, mustn't it?...."

(p. 156) "It is clear that structural entities do exist. Blue Chevrolet....is one of them and will continue to exist whether or not anyone is thinking of it at any particular moment. But functional entities also exist."

"Let us sum up some of the characteristics of these functional entities:

1. They exist only when being thought of, only when being used, only for a particular purpose.
2. They have no length, breadth, or thickness.
3. They have no parts.
4. They function consistently and with unwavering stubbornness according to the way they were conceptualized. You cannot change the definition or its implications at will.
5. They can violate the laws of the sensory reality with impunity if they are organized that way.
6. They can affect our behavior. (p. 157)
7. No instrument or conceivable instrument (cameras, etc.) can register a functional entity. (It can, however, pick up the sign or symbol we use for a functional entity as a camera will pick up the $\sqrt{-1}$ from this page.)
8. Asking what a functional entity is gets you nowhere. You can ask what it enables you to do."

"Interestingly enough, there is another question you can't ask about functional entities. Not ask and reasonably hope for an answer. The question is, Does it exist or not? You can ask this question

about structural entities. It was designed for them. The particular blue Chevrolet....either exists or it doesn't. You and I may disagree as to whether it does or not, but--at least in the sensory reality--there is a true answer. For functional entities, we can ask other questions but not this one. We can ask, What does it enable me to do? What are the implications for its use in the way it was conceptualized? You can get answers to these questions, but not to the question, Does it exist? This question is simply not designed for functional entities. If you ask, 'Does the $\sqrt{-1}$ exist?' you are going to simply wander in semantic circles....."

(p. 161) "If we have learned any one thing from the modern philosophical study of language--from Santayana, Cassirer, Wittgenstein, Korzybski, and the others who have devoted so much brilliance to it--it is that if you ask a question that does not apply in the frame of reference you are using, you are going to wind up chasing your own tail. You are simply not going to get an answer."

13.4. THE NEUROTHEOLOGY MOVEMENT:

SQ: SPIRITUAL INTELLIGENCE AND THE "GOD SPOT/MODULE" (A planned section)

13.5. "ZERO POINT FIELD" AND CONSCIOUSNESS: DAVID BOHM AND THE IMPLICATE ORDER AND W.A. TILLER'S 11 DIMENSIONAL THEORY AND RESEARCH MODEL (in process)

13.5.1. DAVID BOHM AND THE IMPLICATE ORDER

David Bohm's book (1980/1981) proposed in chapter 7 ("The enfolding-unfolding universe and consciousness") that "Throughout this book the central underlying theme has been the unbroken wholeness of the totality of existence as an undivided flowing movement without borders." (Bohm, 1980/1981, p. 172) Bohm proposes..."that a new notion of order is involved here [in the hologram], which we called the *implicate order* (from the Latin root meaning 'to enfold' or 'to fold inward')....[E]verything is enfolded into everything. This contrasts with the *explicate order* now dominant...in which things are *unfolded* in the sense that each thing lies only in its own particular region of space (and time) and outside the regions belonging to other things." (Bohm, 1980/1981, p. 177) The totality of reality was called ..."by the name *holomovement*. Our basic proposal was then that *what is* is the holomovement and that everything is to be explained in terms of forms derived from this holomovement." (Bohm, 1980/1981, p. 178) "...[I]n its totality the holomovement includes the principle of life as well. Inanimate matter is then to be regarded as a relatively autonomous sub-totality in which...life does not significantly manifest...[T]he holomovement which is 'life implicit' is the ground both of 'life explicit' and of 'inanimate matter,' and this ground is what is primary, self-existent and universal...[C]onsciousness...is to be comprehended in terms of the implicate order, along with reality as a whole...[T]he implicate order applies both to matter (living and non-living) and to consciousness, and that it can therefore make possible an understanding of the general relationship of these two, from which we may be able to come to some notion of a common ground of both [matter and consciousness]...The question ...is that of whether or not...the actual 'substance' consciousness can be understood in terms of the notion that the implicate order is also its primary and immediate actuality...[W]e could come to the germ of a new notion of unbroken wholeness, in which consciousness is no longer to be fundamentally separated from matter." (Bohm, 1980/1981, pp. 195-197)

"Zero point energy" is introduced on page 190. Recently (2002) an investigative reporter, Lynne McTaggart has written a very understandable description of this concept of the "Zero Point Field" in The Field: The Quest for the Secret Force of the Universe. She describes it's importance to many contemporary areas of science and healing. She has done a service similar to Marilyn Ferguson's The Aquarian Conspiracy: Personal and Social Transformation in the 1980s (1980), Itzhak Bentov's Stalking the Wild Pendulum: The Mechanics of Consciousness (1977), Michael Talbot's The Holographic Universe (1991) as well as many others.

"...[T]he Zero Point Field was called 'zero' because fluctuations in the field are still detectable in temperatures of absolute zero...[E]mission and reabsorption of virtual particles occurs...with all quantum particles in the universe. The Zero Point Field is a repository of all fields and all ground energy states and all virtual particles -- a field of fields. Every exchange of every virtual particle radiates energy...[I]f you add up all the particles of all varieties in the universe constantly popping in and out of being, you come up with a vast, inexhaustible energy source...all sitting there unobtrusively in the background of the empty space around us, like one all-pervasive, supercharged backdrop." (McTaggart, 2002, pp. 19-23) Physicist Hal Puthoff is the most active research in this domain. This concept of Zero Point Field looks very similar to Bohm's Implicate Order. Tiller's formulation (13.5.2. below) is a very sophisticated theoretical and empirical expansion on this concept.

13.5.2. W.A. TILLER'S 11 DIMENSIONAL THEORY AND RESEARCH MODEL

13.5.2.1. INTRODUCTORY COMMENTS

Tiller's work is one of the most detailed, sophisticated and precise demonstrations of the possible relations between Ken Wilber's right and left quadrants of the total Kosmos (external-objective and internal-subjective). Most of his writings tend to be VERY technical and require sophistication in the area of theoretical/mathematical physics. Below I reprint some of his most accessible writings on his model.

13.5.2.2. FROM "ENERGY FIELDS AND THE HUMAN BODY: PART II"

(no date but about 1975. available without figures at <http://tillerfoundation.com/energyfields.html>)

"In this paper, I [WAT] ... project a model of substance so that we may have a framework wherein we can start understanding how many of the non-physical energies... come into play and begin to interact with each other and with the physical...."

"Theoretical Model of Substance: ...[L]et me make clear what I mean by model. A model can be thought of as a working hypothesis. It is a conceptual framework from which we can start to try and understand some aspect of nature. It is a target at which we can start throwing experiments. In the beginning, it is the first discrimination of ideas into some format or structure that gives one a feeling that he is starting to meaningfully grapple with the particular unknown area under consideration. As one begins to model the phenomenon, he is able to formulate the right kind of experiments for testing the hypotheses, and then can perform the experiments and can obtain feedback of new and pertinent information. This allows one to check out whether a particular aspect of the model is correct and to subsequently make corrective changes all through the model as need be as time goes by. However, to do this, one must have a place to start. Thus, models, to me, are

like the rungs of a ladder from which one climbs from one level of understanding to another. Most of the models are eventually wrong in detail, but they serve the tremendous function of allowing one to climb from one position of understanding of the universe to a more enlightened position of understanding.”

“...[O]ur present understanding of human energy fields is inadequate to account for these new phenomena. So many things seem to happen that are not explicable in terms of electromagnetic energy or sonic energy that, by trying to squeeze all these new aspects into that very small mould, we will get lost (because they just will not fit). Thus, the place where I have started is to take the yogi philosophy of the seven principles operating in man and hypothesize that this really means that there are seven different levels of substance (unique substance); that these different substances have different types of configurations (1). They obey entirely different kinds of laws -- unique types of laws -- and they have unique characteristics of radiation (absorption and emission). I further postulate that they operate in different kinds of space-time frames in the universe and so are distinct from each other. The seven levels of substance, then, from the coarsest going towards the finest are: (1) the physical level that we are familiar with; (2) the etheric level (the Russians call this the bioplasmic body or the energy body; some people call it the pre-physical body); (3) the astral level; (4) there are three levels of mind: instinctive, intellectual and spiritual mind and (5) another distinct level which is spirit.”

“There is considered to be a level beyond these seven, which shall be called the Divine. However, relative to all that I think we will be capable of perceiving for a very long period in the course of human evolution, we may think just in terms of the seven levels of substance.”

“These seven substances interpenetrate each other in nature and may interact with each other. They, through the polarity principle, form atoms and molecules and configurations of these. One can apply the metaphysical principle: "As above, so below; as below, so above", and realize that what we see in the physical may be used as a model and this same kind of modeling understanding may be extrapolated through the other levels of substance, differing somewhat in detail from the physical, and we may begin conceptually to grapple with these other levels. The substances interpenetrate, and their relationship may be visualized by considering the situation in our own bodies. To visualize our seven bodies, think of seven transparent sheets of paper and, on these sheets, using particular pens of different colors, draw circuitry of one color on one and on another draw circuitry of another color, and so on through the seven colors. Then, put these sheets all together and look through them, and you will see an organization of substance at the various levels within the bodies of man. That, basically, is the model I wish to project.”

“In general, these substances do not interact with each other too strongly. However, they can be brought into interaction with each other through the agency of mind, and it is really at the point of mind that one can bring about changes in the organization of structure in these various levels of substance. That is, through mind forces, one can create a pattern, and that pattern then acts as a force field which applies to the next level of substance. In turn, that force field is a force for organizing the atoms and molecules into configurations at that level of substance. That pattern of substance at the etheric level, then, is in a particular state of organization and it has its own radiation field --its own force field if you like --and that force field, then, is a field for the organization of matter at the next level of substance --the physical level of substance. These etheric

forces, then, bring about the coalescence and organization of matter at the physical level of substance.”

“Here, we see something that I have chosen to call the "ratchet" effect; one can see an action beginning at the mind level and working its way down through to produce an effect on the physical level (and vice versa).”

“... In my model, God created the universe, and He created it as a hologram...! The first hologram beyond the Divine was a hologram of spirit substance which organized itself and the organization, at that level, had coherent radiation centers which radiated a pattern which was a hologram at the spirit-mind level. Then the substance organization at this level occurred which, in turn, contained coherent radiation sources which led to the radiation patterns for organization of the intellectual mind. That, in turn, led to organization and coherent radiation to form a hologram for the organization of instinctive mind, and so on down the line. I think we saw the first and simplest representation of this with the cut leaf experiment. That is why I think it is so important to see, in fact, some evidence of the hologram penetrating to the physical level from the etheric level. (Note: this experimental result has not yet been reproduced in this country.)”

“Now, there are several things that are important to note about a hologram. One is that if you take any piece of the hologram, you may recreate the entire hologram, and it is through this that we can understand what was meant when Cayce said: "Man within man is all representation of the universe. Within a cell of man is a representation of the entire universe--within an atom is a representation." If, in fact, the hologram model of the universe is correct, then this is exactly what we should expect. A second thing that is important to note about this hologram, if this is the way creation took place, is that the Divine pattern produced initially created patterns at the mind level of Nature for the development of man in a harmonious way. This results from the coherence in the energy pattern. However, man has free will and, if with that free will, he polarizes from an ego-mind aspect, he creates mental patterns, which are not consistent with those initially set, and they do not reinforce them. This, then, produces an anomaly or disharmony in the initial pattern and that disharmony in the initial mind pattern affects both the individual and mankind in general so that disease really would start here. That is, the thoughts that one creates within himself and within society at large generated patterns at the mind level of Nature. Those patterns are superimposed upon the existing Divine pattern. They then produce cause and effect relationships all the way down through the various levels of substance, and so we see that our illness, in fact, eventually becomes manifest from the altered mind patterns through the ratchet effect - first to effects at the etheric level and then, ultimately, at the physical level. Here, then, we see it openly as disease at the physical level and, if we begin to sense the etheric level, we will see it also as disease at that level. So what is the way to cure it? Even though we bring about medical changes at the physical level, we do little at these deeper levels so that the disease will eventually recur. We would be a better doctor if we could produce correction at the etheric level because then the cure would last longer. However, it will not be permanent because we have not altered the basic hologram at the mind and spiritual level. We have to change at the mind and spirit levels to change the mental patterns so that we can produce, if you like, an annihilation of disharmonious elements at this level of the hologram. Then, Nature will just go forward in its harmonious way and man will not create and manifest disease.”

“Let us consider the physical and etheric levels just for a moment before I switch to my next topic. Think of these, if you like, as a type of transformer association with the etheric as the primary, and

the physical as the secondary. The primary circuit always contains the greater quantity of energy, and secondary circuit manifests a stepped-down condition, so that there is less energy generally. In the physical energy circuit, we see the acupuncture meridians. There is, I anticipate, an analogous circuitry at the etheric level of the system. I am not quite sure of its pattern yet, but anticipate that there is an inductive coupling between these two companion circuits. Perhaps the one aspect of this relationship that we know most about is that in the physical body we see the endocrine glands as being the important spiritual centers (energy centers) of the body, and have come to learn how strongly their functioning relates to the whole chemical and physiological functioning of the body. At the etheric level we have heard for such a long time about the chakras. The chakras and the endocrines appear to be at the same spatial location within the body, and my feeling is that they act as coupled or companion glands; i.e., as chakra-endocrine pairs, and we should begin to think of them as a type of transformer or transducer, if you like.”

“... I propose that the manifesting of psycho-energetic phenomena is associated with taking the primary energies in the body and making them coherent. In my modeling, I suspect that if we took all the energy in a single human body and made it coherent, there would be at least enough energy to create our entire universe at the physical level. You see, the basic energy is already there; it is just that it is in an incoherent form, and our job is to make it coherent. This we do by developing attunement with Nature through our meditation, our thoughts, and our actions. That is when these powers become manifested, and they are manifested through these various mechanisms. Some people seem to have a head start via the structure of their genes, but others can catch up and surpass by muscle building at these internal levels of self.”

13.5.2.3. “A WHITE PAPER ON THE LAW OF CAUSE AND EFFECT”

(no date but about 2000. Quoted in its entirety with added figures from other papers for illustration. Available at <http://tillerfoundation.com/tiller6.html>)

“My [WAT] working hypothesis is that we are all spirits having a physical experience as we ride ‘the river of life’ together.”

“Our spiritual parents dressed us in our biobodysuits and put us in this playpen, which we call a universe, in order to grow in coherence, in order to develop our gifts of intentionality and in order to ultimately become what we were meant to become -- effective co-creators with our spiritual parents.”

“These biobodysuits come in a wide variety of colors and two unique morphologies, that we choose to call genders. Each biobodysuit has four main layers [see Figure below]:

- (1) the outer layer is the electric monopole substance layer [physical direct, D space, 4 dimensions],
- (2) the first inner layer is the magnetic monopole substance layer [conjugate physical, R space, 4 dimensions. These two D + R add to 8 dimensions],
- (3) the second inner layer is the emotion domain [9th dimension] substance layer and
- (4) the third inner layer is the mind [mental] domain [10th dimension] substance layer -- and inside that is a portion of our spirit self [11th dimension] that drives the vehicle. So think of this multilayered suit as a kind of ‘diving bell’ or apparatus that our spirit self uses to sense and experience this peculiar earth environment.”

“All of these inner layer substances function in what we presently call ‘the vacuum’ and, the more structurally refined are these layers, the larger is the amount of our high spirit self that can inhabit the biobodysuit. What are known as the four fundamental forces of present-day science (gravity, electromagnetism, short range and long range nuclear forces) all function in the outermost layer and somewhat in the first inner layer of the biobodysuit. What are presently called ‘subtle energies’ all function in the three layers of the vacuum.”

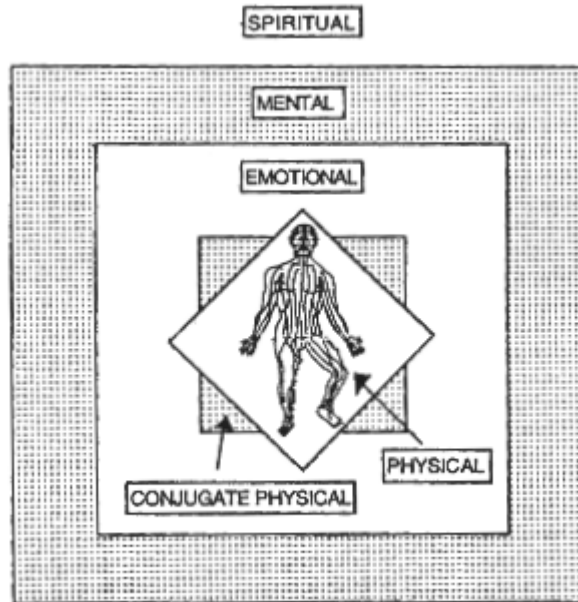


Figure 13.5. Visualization of the multi dimensional biobodysuit: the dual four-space frames (Direct physical or D. space and conjugate physical or R space) are imbedded in a nine-space (emotion frame) which is imbedded in a ten-space (mind frame). This is all embedded in the eleven-space of spirit.

“In terms of some of the characteristics of these suits, it is well known that, at least at the moment, our eyes detect only a very small fraction of the total electromagnetic spectrum and our ears detect only a very small fraction of the total available sound spectrum. Thus, it is perhaps not so surprising when I suggest that we generally detect only one band in the total spectrum of reality!”

“For most of us, we are presently only cognitively aware of the outer layer of our biobodysuits and the outer layer of the world that surrounds us. However, some individuals are, today, cognitively aware of these unseen bands in the spectrum of reality. ^(1,2) This means that such a capability is a natural part of the multidimensional human genome and that all of us have the latent capability for achieving these expanded levels of cognition. This generally occurs via intentional and diligent practice of self-management techniques. We are all familiar with such processes at the outer layer of the biobodysuit level for gaining various athletic, artistic or strength co-ordinations. Now, we want to extend such efforts to the emotional and mental levels as well -- to build new infrastructures at the inner levels of our biobodysuits.”

“At least three or more inner self-management techniques at emotional and mental levels are readily available to us:”

“(1) Yoga -- The oldest and best known. It focuses on the brain in order to still the mind and then make significant contact with our larger self.”

“(2) QiGong -- The next oldest, and the basis for all the martial arts. It focuses on the Dan Tien point just below the belly-button in order to still the mind and then make contact with our larger self.”

“(3) HeartMath -- The newest, which focuses on the heart in order to still the mind and then make significant contact with the larger self.”

“There are a variety of other procedures, Sufism being one.”

“In almost all cases, sufficient diligent practice leads to various levels of adeptship and this naturally manifests as what we presently call ‘super-physical’ abilities. I prefer to call it actualizing our latent abilities^(1,2) which involves becoming more coherent and therefore more conscious.”

“To me, consciousness is a concomitant by product of spirit entering dense matter. If only a little can enter because insufficient structural organization exists in the dense matter, then the individual consciousness will be low. This means that the individual's awareness will also be low and very little flexibility will exist in the course of action to be taken in response to a stimulus or event that occurs in the environment. However, by the diligent application of personal effort, one can increase the structural refinement in their biobodysuit so that it exhibits a greater capability. Thus, more of our high spirit self can enter the body and the individual exhibits a higher level of consciousness. This manifests, in part, as greater personal awareness, the recognition of new possibilities, more flexibility, more adaptability, a greater ability to just love and not judge another human, the recognition that only win-win situations are enduringly stable, the recognition of others as part of our larger self, etc.”

“This continual ‘bootstrap’ self-help process is the way we grow. And we have grown quite a bit since we first invested a part of our spirit-selves in the biobodysuits of the mammalian ape. However, we still have a very long way to grow before we reach home!”

“What we see here is that ‘we are the product of the process and we are built by the process!’ By directed intention, we engage in activities outside of ourselves and, by the quality of our actions there, have the possibility of building a better biobodysuit (a major experience in spirit creation) and developing a higher consciousness -- both of which greatly enrich the human family!”

“At the outer layer of our biobodysuits, our neural systems function only on the basis of contrast or differences. Thus, our sensory systems in this layer detect only the differences between things and this is why we appear to be separate from each other. At the level of the first inner layer of the biobodysuit, a special kind of ‘mirror-type’ relationship exists and the coordinates for experience are not distance and time but are the reciprocals of these ($1/\text{distance} = \text{number per unit distance} = \text{frequency}$ and $1/\text{time} = \text{number per unit time} = \text{frequency}$). Thus, this coarsest level of the vacuum is a frequency domain (spatial and temporal) and, there, there is no separation between us. There,

we form a unity, and the events that occur in that presently unseen domain are the precursors to all the events that materialize at the space-time level. If you like, it is the pre-physical reality where we collectively create our future at the space-time level.”

“At present, we don't cognitively access the vacuum domains in the reality spectrum for a variety of reasons. Three of these are:”

“(1) We are seldom quiet enough at the outermost layer level in order to reliably sense the information signals present at the more subtle levels -- they are buried down in the noise.”

“(2) We have not yet developed a sufficiently coherent structural organization at these inner levels to allow large amplitude signals to exist and be sustained in the vacuum domains and”

“(3) Perhaps most important of all is that our mindsets are such that we believe the four dimensions of space-time are all that exists and, therefore, we have built a cognitive jail for ourselves with walls so high and thick that it is almost impossible to tunnel through them and break free of this confining mindset!”

“Now, let me address some of the key points in this biobodysuit metaphor:”

“(a) The Vacuum:

Most of the general public hold the idea that the vacuum is not only the absence of physical matter but is also devoid of anything! However, for quantum mechanics and relativity theory to be internally self-consistent, the vacuum is required to contain an amazingly large inherent energy density ($\sim 10^{94}$ gms/cc). This vacuum energy density is so large that the intrinsic total energy contained within the volume of a single hydrogen atom ($\sim 10^{-24}$ cm³) is more than one trillion times larger than that contained in all the physical mass (mean mass density $\sim 5 \times 10^{-28}$ gms/cm³) of all the planets plus all the stars in the entire known cosmos out to a radius of 20 billion light-years. This makes the energy stored in physical matter an insignificant whisper compared to that stored in the vacuum. Uncovering the secrets of the vacuum is obviously a very important part of humankind's future.”

“(b) Coherence:

To illustrate this principle, let us consider the case of a typical home-use 60 watt light bulb (~ 1 watt/cm³). It provides some illumination but not a lot of illumination. This is primarily because the emitted photons destructively interfere with each other so that most of the bulb's potential effectiveness is destroyed. However, if we could somehow take the same number of photons emitted by the light bulb per second and orchestrate their emission to be in phase with each other, then we would have constructive interference between these photons (a laser) and now the energy density of the surface of the light bulb would be thousands to millions of times larger than that emitted by the surface of the sun (~ 6000 watts/cm²). This illustrates the unutilized potential in the present light bulb. Perhaps the best example of the development of coherent energy emissions from

humans comes from studies of QiGong masters. ⁽¹⁾ They appear to emit beams of infra red radiation (~1 to 4.5 microns) from their palms that have healing benefits.”

“(c) Mindsets:

One of the most striking experiments concerning the power of one's mindset was carried out in the mid-1930's by a psychologist named Slater who designed what might be called ‘upside down’ glasses. ⁽¹⁾ Subjects were asked to continually wear these glasses that distorted one's perception so that the wearer saw everything in an upside down configuration. It was very destabilizing for the wearer but after about two to three weeks (depending on the wearer), there was a sudden ‘flip’ and they saw everything right side up. Then, if the subject permanently removed the glasses, the world was abruptly upside down again for about two to three weeks before the images returned to a normal perspective. Here, we see that the original mindset was so strong concerning the upright orientation of familiar objects that, when the special glasses inverted this orientation, a force developed in the brain to seemingly cause neural dendrites to grow into a configuration that essentially created an inversion mirror in the optical information path. Once this neural structure was "hardwired", it took the old mindset several weeks to deconstruct the special signal inversion network. We now call this ‘neural learning’ and we humans do it all the time. It is how we build additional infrastructure into the various layers of our biobodysuits!”

“(d) The Cause/Effect Process:

Via specific intentions, the in-the-biobodysuit aspect of our spirit self produces actions in the infrastructures of the various layers and these ultimately manifest as events in space-time. Specifically, the intention from the domain of spirit imprints an initial pattern on the mind domain (the innermost layer). The detailed intra-layer connections⁽¹⁾ transfer the imprint in a correlated pattern to both the magnetic monopole layer (second layer) and to the emotion domain layer (third layer) where it activates an important coupling substance, called deltrons, in this layer. The deltrons allow coupling between the magnetic monopole substance of the second layer and the electric monopole substance of the first layer (outermost layer). This coupling agent acts much like the ‘toner’ needed in a standard copy machine to produce a clear and legible copy. ⁽¹⁾ When the original intention imprint reaches the outermost layer of the biobodysuit, it activates the built-in mechanisms for action in the surrounding domain -- physical reality.”

“It is via this process that we collectively and continuously create our future in space-time. Our individual responses to the events we perceive in space-time are in the form of thoughts, attitudes and physical actions (and probably reciprocal space actions). This is feedback to the mind and emotion domains which make incremental changes to the patterns that generated the initial events in space-time. The superposition of all the responses to the initial events from all of humankind leads to the new pattern at the mind level that generates a new set of events in space-time. ⁽¹⁾ Iteration of this incremental step, which can be considered as a single frame in the "movie" called the ‘River of Life,’ is how we collectively create our cognitive reality and how our spirits learn the pros and cons of applied intentionality.” [see Figure below]

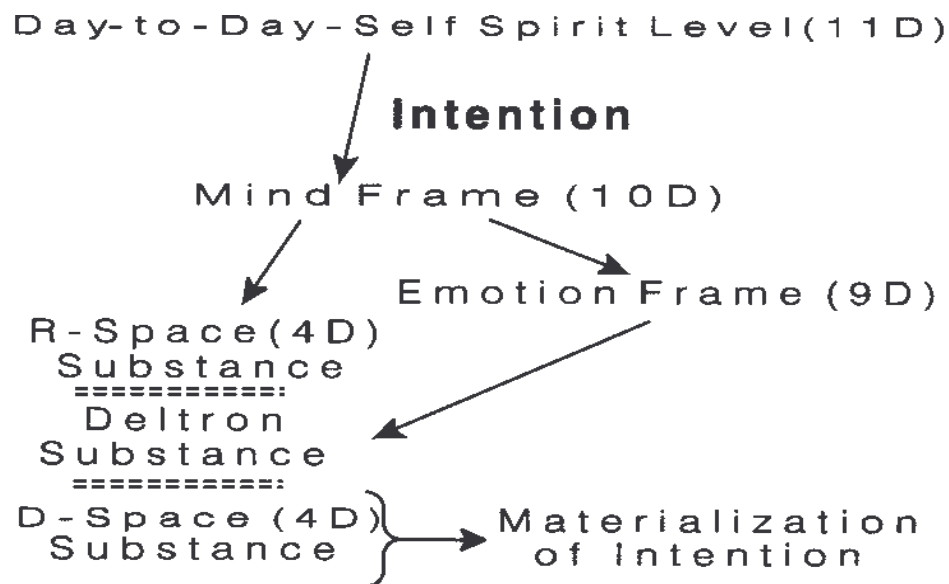


Figure 13.6. Illustration of one possible process path whereby spirit produces action in the physical domain

“(e) Some Experimental Evidence:

Our experimental studies, carried out between January, 1997 and January, 2000, deal with IIEDs⁽¹⁾ (Intention Imprinted Electrical Devices). We start with two physically identical, simple electronic devices housed in plastic cases about 7" x 3" x 1" in size (3 oscillators in the 1-10 megahertz range with output power of less than 1 microwatt at about 3" from the device). We take one of these devices, wrap it in aluminum foil and place it in an electrically-grounded Faraday Cage (FC). This is our control device. The other device is imprinted with a specific intention for a particular target experiment and then also wrapped in aluminum foil and placed in it's own FC until the next stage in the process. The FC's and aluminum foil are needed to keep information transfer from occurring between the IIED and the unimprinted control device. The next stage in the process was to ship the wrapped devices on separate days via Fed Ex 2000 miles to a laboratory where others place them in individual FC's until they are used in specific target experiments. The typical way in which the devices are used in an experiment is to place one or the other about 6" from the active center of the experiment and just turn it on for the duration of the experiment. We have found that the experimental results with the specific IIED change robustly according to the imbedded intention as compared to use of the control device.”

“The actual imprinting is carried out by four accomplished meditators who exhibit a high level of inner self-management at mental and emotional levels. On entering a deep meditative state, they mentally cleanse the area surrounding the device to create a "sacred space" and, when accomplished satisfactorily, they first state and then mentally hold the specific intention for about 10-15 minutes. Then they release the intention and mentally seal the device before returning to their normal state of consciousness.”

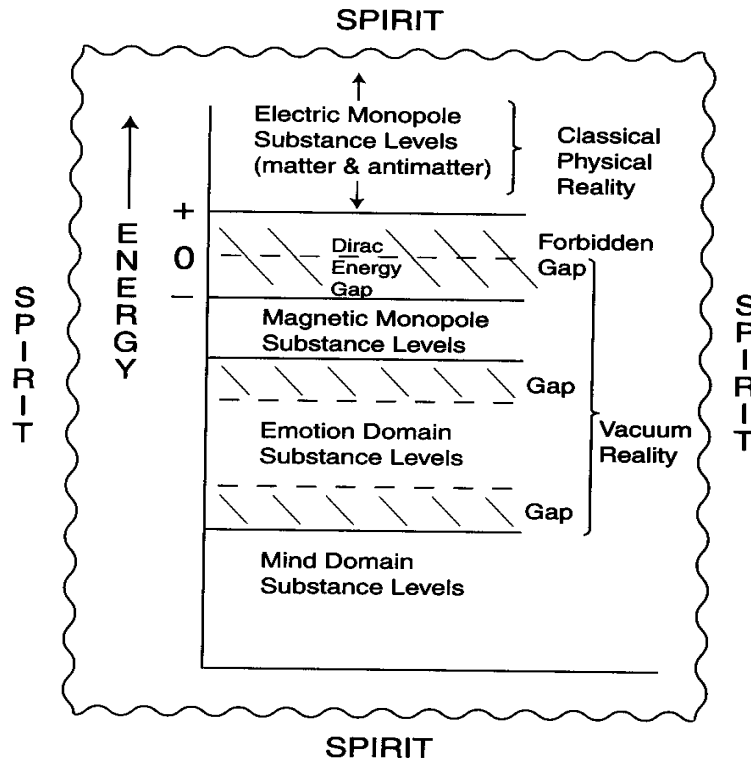


Figure 13.7. An energy level diagram embracing both classical physical and “unseen” vacuum substances (from Tiller, dibble and Kohane 2001, Conscious Acts of Creation: The Emergence of a New Physics, p 315

“Four target experiments have been carried out to date:”

“(1) The intention was to increase or decrease (a separate device) the pH of purified water by one full pH-unit. This is a change in hydrogen ion concentration by a factor of ten. We have been completely successful in achieving these goals with a pH-measurement accuracy of ± 0.01 pH-units. Thus, here, we are not searching for a weak signal down amongst the noise because our results are about 100 times the measurement accuracy -- a very robust result indeed!⁽³⁾”

“(2) The intention was to increase the [ATP]/[ADP] ratio in developing fruit fly larvae so that they would be more fit and thus have a significantly reduced larval development time, $T_{1/2}$, to the adult fly stage. Experimentally, we found that both the [ATP]/[ADP] ratio and $T_{1/2}$ changed significantly (about 10%-20%) when the IIED was used compared to the control. All of this yielded excellent statistics with $p < 0.001$.^(4,5)”

“(3) The intention was to increase the in vitro thermodynamic activity of the liver enzyme, alkaline phosphatase (ALP) by a significant amount. This was achieved with an increase of about 20% for the IIED compared to the control device and, once again, the statistics were excellent ($p < 0.001$).⁽⁶⁾”

“(4) The intention was to condition some significant volume of local, physical space around the activated IIED so that a significantly stronger coupling occurs between the electric monopole layer

of nature [physical direct, D space] and the magnetic monopole layer of nature [conjugate physical, R space]. We have found that the effect of DC magnetic field polarity (North Pole vs. South Pole) is zero in an unconditioned, normal space (as is should be from conventional physics) but it can be quite large in a conditioned space. Thus, the infrastructure of the vacuum has been altered to reveal a higher level of symmetry existing in what was, heretofore, the ‘unseen’ domains of nature (new physics).”

“These are all very remarkable results which are certain to confound our physics, biology and medical colleagues. However, the experimental data speaks for itself in spite of the entrenched belief systems held by others.”

“In closing this white paper I [WAT] wish to add that, the more I work with these concepts and experiments, the more I come to feel that there is only one reality being constantly expressed by nature but that we have limited access to it. Our access is limited by our level of cognitive development and this, in turn, is limited by the quality of our focused intentions to develop more infrastructure in the various layers of our biobodysuits.”

13.5.2.4. SUMMARY OF THE RESULTS OF WILLIAM TILLER’S SCIENCE ADVENTURES WITH REAL MAGIC RESEARCH PROGRAM

Other papers are available at: <http://tillerfoundation.com>

Taken from Tiller, William A, Walter E. Dibble Jr., and J. Gregory Fandel (2005) Some Science Adventures with Real Magic, Pavior Publishing

13.5.2.4.1. Glossary of Technical Terms and Abbreviations

Deltrons = a postulated coupling substance from the domain of emotion (outside of physical reality) which has the quality of being able to travel at velocities both above and below the speed of light and to interact with substances from both levels of physical reality [D + R space]. The means by which human intention can influence physical (D) space.

Deltron coupling coefficient, γ = the measure of magnitude of deltron activation which determines the degree of D-space object/substance interaction with R-space object/substance. With an increase in the coefficient, the degree of connectivity between any two D-space objects increases regardless of distance.

D space = Direct (D) physical space with 4 dimensions, space-time. This is the typical universe as postulated by mainstream science],

R space = the magnetic monopole substance layer, conjugate Reciprocal (R) physical inverse space-time, 4 dimensions.

Biconformal/duplex Reference Frame (D+R space) = a proposed new view to allow a more internally self-consistent description of nature that includes all conventional science phenomena plus the main aspects of all psychoenergetic phenomena.

EM = ElectroMagnetic

EM gage symmetry state = the inner symmetry condition of a space relative to its electromagnetic nature.

Gage Theory = the synthesis of quantum mechanics and symmetry where gauge invariance is the physical principle governing the fundamental forces between all elementary particles. Invariance indicates something that does not change under a set of transformations.

IIED = Intention Imprinted Electrical Device. The effective host for a specific intention. It can be transported from its original imprinting location and, when turned on in that distant space, lifts the EM gage symmetry state of that space and tunes the space so as to experimentally manifest the specific intention.

Ψ_{H+} = the new discovery of the magneto-electro-chemical potential energy for a proton, the energy change associated with increasing the EM gauge symmetry (inner symmetry) state of a space above the usual U(1) gage symmetry level.

U(1) gage symmetry space = our usual EM gauge symmetry space-time universe. Magnetic monopoles are not detectable. Typically, in our usual universe, magnets are dipole.

U(2) gage symmetry space = higher EM gauge symmetry (inner symmetry) with a higher thermodynamic free energy per unit volume. Magnetic monopoles (Direct Current magnetic field polarity) are detectable. Both electric charges (+ and -) and single magnetic monopoles (N and S) naturally coexist.

$p < 0.001$ = the probability of an observation occurring by chance is less than 1 in 1000.

Δ = the difference (Δ) in measurement of some quantity.

13.5.2.4.2. Summary of General Theoretical Assumptions and Conclusions (p. 137)

1. [William A. Tiller's] working hypothesis is that we are all spirits having a physical experience as we ride "the river of life" together. Our spiritual parents dressed us in our *biobodysuits* and put us in this playpen, which we call a universe, in order to grow in coherence, in order to develop our gifts of intentionality and in order to ultimately become what we were meant to become -- effective co-creators with our spiritual parents. Each biobodysuit has four main layers:
 - a. the outer layer is the electric monopole substance layer [physical direct, D space, 4 dimensions, space plus time. This is the typical universe as postulated by mainstream science],
 - b. the first inner layer is the magnetic monopole substance layer [conjugate reciprocal physical, R space, 4 dimensions. These two D + R add up to 8 dimensions of Tiller's model of the total physical universe],
 - c. the second inner layer is the emotion domain [9th dimension] substance layer and
 - d. the third inner layer is the mind [mental] domain [10th dimension] substance layer -- and inside that is a portion of our spirit self [11th dimension] that drives the vehicle. So think of this multilayered suit as a kind of "diving bell" or apparatus that our spirit self uses to sense and experience this peculiar earth environment. [taken from Tiller, William A. (undated, maybe 2000) "A White Paper on the Law of Cause and Effect," available at <http://tillerfoundation.com/tiller6.html>]
2. There are two important levels of physical reality, (1) the conventional atom, molecule and EM (Electro Magnetic) photon level where everything travels at velocities (v) at or less than the speed of EM light (c) ($v \leq c$) in the physical vacuum [characteristic of physical direct, D space with 4 dimensions, space plus time] and (2) the information wave level in the physical vacuum where everything travels at more than the speed of light ($v > c$). [conjugate reciprocal physical, R space with 4 dimensions].
3. A postulated coupling substance, called **deltrons** from the domain of emotion (outside of physical reality), exists and has the quality of being able to travel at velocities both above and below the speed of light and to interact with substances from both levels of physical reality. [D + R space]

4. Deltrons also embody intelligence so that all aspects of human consciousness can interact with deltrons and thus modulate the **coupling coefficient**, γ , between the two categories of physical substance. [D + R space]
5. A reciprocal mirror principle for various qualities operates between these two, deltron-coupled levels of physical reality so that a quality of one level times the quality of the other level form a unity in the proposed duplex [D + R space] Reference Frame used to describe nature's behavior in totality, thus including all known phenomena.
6. The human acupuncture meridian/chakra system is an intention modulated system in the human body with coupling greater than zero ($\gamma > 0$) so that (1) strong coupling can develop between the two body-levels of physical reality [D and R space], (2) such intention-directed coupling can enhance human performance and behavior by many orders of magnitude relative to current levels and (3) humans matter; they can dramatically and beneficially evolve themselves to significantly higher states of being.

13.5.2.4.3. Key Findings for Conditioned Space Experimental Data (p. 93)

Tiller et. al. have been able to raise the thermodynamic free energy per unit volume of space so that they retain influences introduced by their IIED (Intention Imprinted Electrical Device). That is, once the intention is imprinted by humans into the device, the device, when left in a physical space, will in turn, imprint the space at a higher EM gauge symmetry level (thermodynamic free energy per unit volume) after the device is removed.

1. For humans, and perhaps all vertebrates, bioelectromagnetism is quite different than Maxwellian electromagnetism because the human acupuncture meridian system is observed to be at a higher EM gauge symmetry level where magnetic monopole charge is experimentally accessible.
2. A laboratory space and equipment, raised to a higher EM gauge symmetry state wherein magnetic monopole currents are experimentally accessible, is found to be a very sensitive detector of subtle energy emissions by humans (subtle energies are defined as all those beyond the energy aspects of the accepted four fundamental forces in D space).
3. Large bursts of subtle energy emissions during healing steps in humans located in a "conditioned" laboratory act analogously to earthquakes with reverberating aftershocks for a long time. Thus, the detailed character of the laboratory's energy signature is significantly altered for a long time (greater than three months).

13.5.2.4.4. Summary of Key Experimental Findings from Science and Human Transformation (P. 139)

1. A highly developed human biofield [spiritually advanced person] can alter the properties of materials and the functioning of devices so as to reveal deeper levels of nature not anticipated from our normal every-day observations. The radiations from such levels of nature pass through materials that are optically opaque to EM radiations in the visible range.
2. Non-EM emissions from the biofields of normal humans, when modulated by their attention and directed intention, can enhance or not enhance electron microavalanches in a simple gas discharge device depending upon the actual focus of the human's intention.
3. Some humans emit bursts of subtle energy from various body chakras and, via a subtle energy/electrical energy conversion process involving the acupuncture meridian system, large voltage pulses appear both on the body and at sites remote to the body.

4. When focusing on the heart with loving intent, the human EKG (Electro Cardio Gram) becomes harmonic at the baroreflex frequency of 0.14 hertz, where the heart entrains the brain and simultaneously all the other major electrophysiological systems of the body. (baroreflex is the system in the body that regulates blood pressure) [see section A.2] In this heart entrainment mode of functioning, body chemical production becomes healthier and focused intent can psychokinetically influence molecular structures both inside and outside of the body.
5. Most young children perceive both EM and subtle energies. Lens and prism experiments indicate that the latter travel at velocities greater than the EM light velocity ($v > c$), and speed up on entering denser matter.
6. Dowsing is a natural human body response mechanism, for those who give it meaning, wherein the unconscious communicates valuable information to the conscious via involuntary small muscle movements or the creation of localized heat patterns.

13.5.2.4.5. Summary of Key Experimental Findings from Conscious Acts of Creation (pp. 140-141)

1. Human consciousness in the form of a specific intention, can be imprinted into a simple, low tech, electronic device from a deep meditative state by highly inner self managed humans. Such a device, now called an IIED (Intention Imprinted Electrical Device), can act as an effective surrogate to robustly influence a unique target experiment in physical reality.
2. The four unique target experiments studied involved (a) an inorganic material (water) with property changes 100 times larger than measurement accuracy, (b) an organic, in vitro material [the liver enzyme ALP, alkaline phosphatase] with property changes of ~20% at $p < 0.001$ and (c) a living, in vivo material [ATP – adenosine triphosphate -- ADP -- adenosine diphosphate ratio in cells of developing fruit fly larvae] with property changes of ~20% at $p < 0.001$, both of the latter having a built in control.
3. A unique intelligence was present in an IIED after imprinting so that the measured material property changes where (a) always in the direction of the IIED's intention imprint and (b) always specific to the particular IIED utilized.
4. An unshielded IIED in the electrically "off" state and physically separated by ~100 meters from a UED [Un-imprinted Electronic Device] in the electrically "off" state still has a communication channel available to it for transferring the imprint statement to the UED within a week. Thus, the carrier for such information exchange is not conventional electromagnetism.
5. This new field, although not EM, can be dissipated through EM leakage pathways. Thus, wrapping an IIED in aluminium foil and storing it in an electrically grounded Faraday cage, prolongs its lifetime of effective use (~3 months before reimprinting is required).
6. Placing a specific IIED in a room and turning it on "conditions" the room to a state wherein the experimental targets of Item 2 above, naturally manifests. Without the presence of this "conditioned" state in the room housing the target experiment equipment, these material property changes do not occur.
7. One characteristic of a "conditioned" space is that a DC magnetic field polarity effect on the pH of water occurs. Such an effect is thought to require the accessing of magnetic monopoles, a property usually associated with a state of higher EM gauge symmetry (inner symmetry) than our normal, everyday reality. Such a state of higher EM gauge symmetry (inner symmetry) is also a higher thermodynamic free energy per unit volume.

8. Another characteristic of a "conditioned" space is the spontaneous appearance of material property oscillations of very large amplitude (air and water temperature, pH, electrical conductivity of water, etc.) that are (a) global throughout the room (b) all exhibit the same Fourier spectral components and (c) all are in the frequency range $\sim 1.0^{-2}$ to 10^{-3} hertz.
9. A third important characteristic of a "conditioned" space is that it is sensitive to the presence of an active IIED at separation distances of at least -150 feet. Oscillations generated in the locale of the IIED spontaneously appear (with a high correlation coefficient) in a "conditioned" space but not in an unconditioned space.
10. If the degree of "conditioning" in a space is low and the IIED is removed from the space, the "conditioning" decays slowly with a time constant of ~ 1 month. If the degree of "conditioning" in a space is sufficiently high, the IIED can be completely removed from the space and stored properly and the level of "conditioning" in the room does not appear to change (at least for 1-2 years).
11. The cause of the air temperature oscillations in a "conditioned" space near an apparent source is not dependent upon movements of the air molecules in the space but rather thought to depend on changes at the vacuum level of physical reality.
12. Removal of the apparent air temperature oscillation source revealed that this vacuum level "phantom" source had a very slow relaxation time (~ 1 -2 months) back to zero amplitude.
13. While in the phantom temperature oscillation source mode of reality, abrupt changes in the orientation of a large natural quartz crystal placed in the initial source region showed abrupt changes in overall oscillation wave shape, wave amplitude and wave frequency. Thus, a quartz appears to be a type of "tuner" for this vacuum source behavior.
14. In a "conditioned" space, spontaneous and abrupt shifts in computer monitoring behavior of a random number generator (RNG) occurred from time to time for no known reason
15. Experimenter effect, specific materials effects and specific device effects appeared, on the short term, to alter the "tuning" of the oscillations in a conditioned space.

13.5.2.4.6. Summary of Key Experimental Findings from the "Remote Sites Experiment" (pp. 141-142)

1. The original Minnesota water pH [acid-base level] results have been substantially replicated by others.
2. At all remote IIED-sites, the digitally recorded pH for purified water in equilibrium with air increased exponentially with time with the change in pH (Δ pH) increasing cycle by cycle of water- change until it reached 1.0 pH units.
3. At all control sites, non-IIED sites, the same type of pH-behavior was observed via an information entanglement process except that (1) for below-ground sites, Δ pH achieved ~ 1.7 pH units and (2) for well above-ground sites, the change in pH (Δ pH) achieved ~ 0.8 pH units.
4. This information entanglement process between IIED and non-IIED, control sites of the overall experimental system occurred over distances from ~ 2 miles to ~ 6000 miles. The carrier wave for this information transfer could not have been electromagnetic.
5. A litmus paper pH-detector only responded to the purely chemical level of the Hydrogen ion (H^+) content present in the water while digital pH-detectors responded to both this level plus an information level associated with the Hydrogen ion (H^+) content.

6. All sites, both IIED and non-IIED, exhibited substantial values of the magneto-electro-chemical potential energy for the proton, (Ψ_{H^+}) after a short time, indicating a raised thermodynamic free energy per unit volume for all sites.
7. The time required to reach the change in pH (ΔpH) ~ 1.0 pH units appears to be less for below-ground control sites than for above-ground control sites and also appears to be relatively independent of distance.
8. Strong experimenter and equipment potentization effects were noted.
9. The optimum reimplanting time for an IIED presently appears to be ~ 3 months.
10. Mu-metal screening does not shield water from this new information entanglement field. *Mu-metal is a nickel-iron-molybdenum alloy used for shielding to protect things from stray magnetic fields.*

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13.6 THE REVOLUTION IN BIOLOGICAL SCIENCE AND IMPLICATIONS FOR SCIENCE AND SPIRITUALITY (Ho, 2000, reproduced in total from the website ratical.org)

An Integral Perspective ala Wilber bridging the right and left quadrants of the Kosmos (external-objective and internal-subjective)

"a.. The machine metaphor has dominated the west for at least two thousand years before it was officially toppled by relativity theory and quantum physics at the turn of the 20th century. Einstein's relativity theory shattered the Newtonian universe of absolute space and time into a profusion of space-time frames in which space and time are no longer neatly separable. Furthermore, each space-time is tied to a particular observer, who therefore, not only has a different clock, but also a different map. Stranger still -- for western science, that is, as it comes as little surprise to other knowledge systems, or to the artists in all cultures -- quantum theory demanded that we stop seeing things as separate solid objects with definite (simple) locations in space and time. Instead, they are de-localized, indefinite, mutually entangled entities that change and evolve like organisms."

"b. Leading thinkers of the age such as Henri Bergson, Alfred North Whitehead, J.S. Haldane and Joseph Needham were inspired to develop a science of the organism appropriate to the new understanding of nature, that would transform the entire knowledge system of the west. Whitehead, in particular, declared that we cannot understand nature except as an organism that participates fully in knowing. For me, that was perhaps the most significant turning point. It was to re-affirm what we all knew in our heart of hearts: that we are inextricably within nature; and that we participate in shaping and creating nature, for better or for worse."

"c. To participate fully is to do so with all of oneself: intellect and feeling, body and spirit. That is the real meaning of the mutual entanglement of 'observer' and the 'observed' in quantum theory. It matters how we know or 'observe', not only because it changes the entire character of our knowledge, but because the act of knowing transforms both the knower and the known. That is why we must never know with violence, but always with sensitivity and compassion."

"d. The project to develop a science of the organism was interrupted and eclipsed, however, by the rise of molecular biology since the 1950s. Biology was taken back down the road of mechanical reductionism, to culminate, today, in a genetic engineering technology that has the potential to destroy all life on earth and to undermine every spiritual and social value that makes us human. We need to reject reductionist biology not just because of its inherent dangers, but because there are positive, rational, life-enhancing, fulfilling and aesthetic reasons for embracing the organic alternative."

"e. Fortunately for us, the 'organic revolution' has survived. It has been gathering momentum across the disciplines within the past 20 years, from the study of nonlocal phenomena in quantum physics and nonlinear dynamics in mathematics to complexity in ecosystems, the fluid genome in the new genetics and consciousness in brain science. The message everywhere is the same: nature is nonlinear, dynamic, interconnected and interdependent. The linear, static paradigm of mechanistic science based on interactions between separate, independent parts is a travesty of organic reality."

"f. All the elements for a science of the organism are there between the disciplines, precisely as envisaged by the pioneer thinkers. I have put some of the key elements together in my book, The Rainbow and the Worm: The Physics of Organisms, first published in 1993 and in 2nd edition in 1998, which is patterned after Erwin Schrödinger's What is Life?. It attempts to explain organic wholeness and complexity based on contemporary quantum physics and non-equilibrium thermodynamics. It gives new insights into physiological regulation, bioenergetics and cell biology, many of which were predicted by the pioneers. Also consistent with their vision, the new science of the organism promises to restore all the qualities that have been exorcised from life and nature, to reaffirm and extend our intuitive, poetic, and even romantic notions of nature's unity."

"g. From the organic perspective, there is no separation between science and spirituality. This stems from the participatory knowing that it entails, in which the knower places her undivided being within the known, which is ultimately all of nature. And, like all participatory knowledge common to indigenous traditions worldwide, it is an unfragmented whole, at once intensely practical, aesthetic and spiritual. It is a coherent and comprehensive knowledge system whereby one lives and whereby one participates in co-creating reality along with all other beings."

"h. There is a two-way connection between science and society. Science is shaped by the politics of society and in turn reinforces it, unless we consciously choose otherwise. The mechanistic paradigm projects a Hobbesian-Darwinian view of nature as isolated atoms jostling and competing in the struggle for survival of the fittest. And through the self-fulfilling prophecy, it has created a dysfunctional social milieu and a *laissez-faire* globalized economy which is destroying our planet and failing to serve the physical and spiritual needs of the vast majority of humanity. That was why fifty thousand took to the streets at the World Trade Organization conference in Seattle in November, 1999."

"i. Science shapes society not just through the technologies it creates, but through values and assumptions that motivate human beings, define social norms and inform the policies of nations. That is where I believe the science of the organism may hold the key to a more sustainable and spiritual world."

"j. I take science, in the most general terms, to be any active knowledge system shared by a society of human beings that gives both meaning to their way of life and the means whereby to live sustainably with nature. Science, therefore, has an overriding obligation to be socially responsive and responsible. It is inseparable from the entire culture of society and its highest moral values, which define the public good. Sustainability is a moral imperative to achieve and safeguard the manifold conditions of a healthy and fulfilling life for present and future generations."

"k. What does it mean to be an organism? To be an organism is to be possessed of the irrepressible tendency towards being whole; towards being part of a larger whole. One of the key concepts in understanding organic wholeness is coherence, the ideal of which is quantum coherence. Quantum coherence aptly describes the perfect coordination of living activities in our body, and there is growing empirical evidence that it may indeed underlie living organization, as described in my book."

"l. To get a feeling for the organism, imagine an immense super-orchestra, with instruments spanning the widest spectrum of dimensions from molecular piccolos of 10^{-9} meter up to a bassoon

or a bass viol of a meter or more, performing over a musical range of seventy-two octaves. Incredible as it may seem, this super-orchestra never ceases to play out our individual lifelines, with a certain recurring rhythm and beat, but in endless variations that never repeat exactly. Always, there is something new, something made up as it goes along. It can change key, change tempo, change tune perfectly, as it feels like, or as the situation demands, spontaneously and without hesitation. What this super-orchestra plays is the most exquisite jazz, jazz being to classical music what quantum is to classical physics. One might call it quantum jazz. There is a certain structure, but the real art is in the endless improvisations, where each and every player, however small, enjoys maximum freedom of expression, while maintaining perfectly in step and in tune with the whole. There is no leader or conductor, and the music is written as it is played."

"m. What I have given is an accurate description of the totality of molecular, cellular and physiological reality of the ideal, healthy organism, which serves to illustrate the radical, paradoxical nature of the organic whole. It is thick with activity over all scales, and both local freedom and global cohesion are maximized, which is generally thought to be impossible within the mechanistic paradigm. In the coherent organism, global and local, part and whole, are mutually implicated and mutually entangled from moment to moment. Each is as much in control as it is sensitive and responsive."

"n. When we extend this notion of mutual entanglement of part and whole, as Whitehead did, to societies, ecosystems and ultimately to all of nature, we begin to recover the profoundly holistic ecological traditions of indigenous cultures worldwide. The coherence of organisms is quintessentially pluralistic and diverse, and at every level. It is so, from the tens of thousands of proteins and other macromolecules that make up a cell to the many kinds of cells that constitute tissues and organs; from the variations that characterize natural populations to the profusion of species that make a thriving ecological community. And most of all, the kaleidoscopic, multicultural earth that makes life enchanting and exciting for us all."

"o. Part and whole, individual and global are mutually entangled and mutually sustaining. That is the basis of the universal moral imperative that we do unto others what we would have others do unto us. It marks the beginning of a genuinely new world order that celebrates and nurtures individual diversity and freedom with universal love."

13.7. QUANTUM HOLOGRAPHY

13.7.1. MITCHELL'S NATURE'S MIND

During the Institute Of Noetic Sciences (IONS) convention held in Vancouver, BC in 2002 April, I heard Edgar Mitchell's talk on "Nature's mind: The Quantum Hologram." This stimulated my active research into the area of quantum theory models of consciousness and psychological processes. One of his points was that standard conventional psychophysiology was inadequate to explain most phenomena such as perception. You can study the visual receptor system and the brain's cell assemblies but still have an explanatory gap. What's required is a mechanism to connect the "real/objective" world with the "internal/subjective" representation of it. His proposal revolves around the concept of the "Quantum Hologram." It is interesting that the leading edge physics concept of the pcar or the Phase-Conjugate-Adaptive-Resonance explanation of perception and knowledge acquisition in general has great similarity to Plato's concept of "ideal forms." The

internal and external have the same homonomic structure which allows us to relate to the external 3D world. (Penrose, 1997)

"[T]he quantum hologram is a macro-scale, non-local, information structure described by the standard formalism of quantum mechanics [which] extends quantum mechanics to all physical objects including DNA molecules, organic cells, organs, brains and bodies. The discovery of a solution which seems to resolve so many phenomena...also points to the fact that in many instances classical theory is incomplete without including the subtle non-local components involved..." (Mitchell, 1999/2002, p 15)

"...[T]he quantum hologram is the information structure suitable to explain Sheldrake's morphic resonance. The non-local quantum correlations observed in particles, and the non-local quantum hologram associated with molecular and larger scale objects, serve the purpose of providing information at all scale sizes to guide evolutionary processes. That is to say, that quantum non-locality is the basis of perception, and thus fundamental and necessary to the complex organizations of matter and information in the universe. Further, since learning is an observed property of complex systems such as animals and, via the quantum hologram, is theorized to be a property of simple cells and molecules, one can also postulate the generalization that nature evolves through a learning process rather than because of random mutations." (Mitchell, 1999/2002, p. 3)

"Marcer [and Schempp] (1997) has proposed that the condition of Phase-Conjugate-Adaptive-Resonance (pcar) is a necessary condition for an object in three dimensional reality to be perceived as it really is. That is, resonance requires a virtual path mathematically equal but opposite to the incoming sensory information about the object. Further, that it is the incoming electromagnetic (space/time) information (visual, acoustic, etc) which decodes the information of the quantum hologram and establishes the condition of pcar so that accurate three dimensional perception is possible. That is to say, both quantum information and space/time information are used in the act of perception by organisms having sensory preceptors. I propose that the two equal but opposite paths required by the pcar condition are the mathematical equivalent of perception and attention (or intention)." (Mitchell, 1999/2002, pp 3-4)

"Non-locality and the non-local quantum hologram provide the only testable mechanism discovered to date which offer a possible solution to the host of enigmatic observations and data associated with consciousness...The absorption/re-emission phenomena associated with all matter is well recognized...[S]uch re-emissions are sufficiently coherent to be considered a source of information about the object...The information carried by a quantum hologram encodes the complete event history of the object with respect to its three dimensional environment. It evolves over time to provide an encoded non-local record of the 'experience' of the object in the four dimensional space/time of the object as to its journey in space/time and the quantum states visited. The...brain's ability, as a massively parallel quantum processor, decode[s] this information... [A]n organism's ability to perceive objects as they are and where they actually are in three dimensional reality requires the phase conjugate relationship provided by quantum holography. It is not sufficient for the incoming electromagnetic illumination (or acoustic signal) carrying object information to present to the brain a wave front in the manner presented to a flat photographic plate. Rather, a virtual signal as mapped by the phase conjugation of quantum holographic formalism is required to decode the information in order for perception and cognition to exist as we experience it in three

dimensional reality. The percipient and the source of information are in a resonant relationship for the information to be accurately perceived." (Mitchell, 1999/2002, p 5)

"In decoding the quantum holographic information...the energy exchange is insignificant....It is the phase relationships that carry the information in holography... And it appears that the brain stores and manages information not as a classical digital machine, but rather as an analog device using non-local properties of the quantum hologram...[T]he non-local attribute of nature is much more than just a curious artifact of subatomic particle interactions... [R]ather [it] is a more fundamental phenomenon that appears at all scale sizes and is, in particular, associated with the utilization of information in nature, and associated with the fact that information has a causal effect independent of distance. [see Bohm's Active Information] It is precisely information, however, that is the basis of the phenomena of perception, cognition, memory, learning, etc., that is to say, consciousness and the subjective experience." (Mitchell, 1999/2002, pp 6-7)

13.7.2. BENFORD ON ACUPUNCTURE and DELAWARR TECHNOLOGY

"[R]esearch in acupuncture has identified a connection between quantum holography and the physical body. In an article by Jovanovic-Ignjatic Z and Rakovic D. entitled, 'A review of current research in microwave resonance therapy: novel opportunities in medical treatment,'...(1999) ...states, 'Such a picture also supports the E[lectro]M[magnetic]/ionic 'optical' ultra-low-frequency modulated M[icro]W[ave] quantum holographic neural network-like function of the acupuncture system (similar to complex-valued oscillatory holographic Hopfield-like neural networks), and its essential relation to consciousness, as strongly suggested from biophysical modeling of altered states of consciousness.' Other work, such as that by RA Dale, (1999) 'The systems, holograms and theory of micro-acupuncture,'...also draws this same essential link between a quantum holographic etheric field and the physical body. Does such an unseen 'elan vital' actually exist and, if so, is there definitive and replicable proof?" (Benford, 2000)

"[Benford's]... article in the Journal of Theoretics ...entitled 'Empirical Evidence Supporting Macro-Scale Quantum Holography in Non-Local Effects,' presents compelling evidence potentially validating quantum holography, which was derived from research championed by physicist David Bohm, a protégé of Einstein's, and Karl Pribram, a highly-respected neurophysiologist from Stanford University. The paper includes spatially-encoded 2-D, and the subsequent re-encoded 3-D images, created from mere samples, or 'target objects,' of blood, sputum, and hair from distant objects. Is this irrefutable evidence of a quantum holographic field linked to physical objects?" (Mitchell, 1999/2002)

"The work discussed in the article is based on over 13,000 such images created by British engineer George DeLaWarr in the 1950s (see Langston Day, 1956, New Worlds Beyond the Atom, 1966, Matter in the Making). According to quantum hologram theorist, Edgar Mitchell, Sc.D., former Apollo Astronaut and founder of the Institute of Noetic Sciences, '...I have read most of the De La Warr book and ...there is now no doubt in my mind that he was playing with quantum holography (QH), as all the characteristics described in his work, fit exactly the description we have of the QH characteristics.'" (Benford, 2000)

"Other interesting aspects of the DeLaWarr technology is that it is space-time independent -- images have been collected not only from distant locations but also from past times (future has not been

tested to my knowledge). Testing is continuing with the system including the collection of new images..." (Benford, 2000)

13.8. THE INTERFACE BETWEEN ENVIRONMENT, INFORMATION, ORGANISM AND THE EMERGENCE OF MIND

(Dear reader, this section is NOT written in intelligent lay-person English.)
(see also Oschman, section 16.7.)

13.8.1. INTRODUCTION

Furman (Furman and Gallo, 2000) emphasizes the importance of pattern recognition and map building as the nervous system makes a model of the world and environment. "[R]eceptors are designed to report news of difference to the internal environment of the organism...a complex interface [the brain and nervous system] is needed to encode, translate, and transfer information patterns to the appropriate regions and systems to initiate a coordinated collective response...The pattern-processing medium...to accomplish this task is the neural-net: the subneural cytoskeletal-net; and the cells, proteins, molecules, and atoms...How do...nerve cells know where to go and in which direction to grow in order to provide...the information-processing pathways...that mediate unified, collective behavior... [One way] is through a pattern-based navigation system, guided by the signaling protein *nerve growth factor* (NGF). In this way, nerve axon and dendrite fractal branching patterns can follow a chemical pathway that specifies the location of the target cells and organs that must be connected. From that point, connections are continually modified by stimulation from internal and external pattern-based information or lack thereof, making use of...the *activity-dependent synapses*...[Thus] the human neural-net is able to change structure and function in the presence of changing internal and external information patterns, thus maintaining continued correspondence with an ever-changing external and internal world. In this way...human beings can maintain a relatively accurate and dynamic map or model of their world, thus producing...adaptation." (Furman and Gallo, pp. 73-74)

"How does this pattern-processing medium change in the presence of information?...[T]he selection and transport of...new signal molecules down a neuron's axon...to the synapse...is dependent on the cell's cytoskeletal-net. As the pattern of the cytoskeletal-net changes in response to information patterns, so does the selection of neurotransmitters and their pathway of travel...[T]he cytoskeletal-net is capable of spontaneous pattern and pathway change in the presence of the appropriate signaling molecules, thus radically changing connectivity patterns in the neurosynaptic-net of the neocortex."

"The subneural cytoskeletal-net itself is made up of much smaller pattern-based building blocks called *tubulin*, a protein capable of snapping together to form elaborate *microtubules*, tubular networks for communication and transport. These...networks hook together in complex and dynamically changing patterns with the help of *microtubule associated proteins* (MAPs), a 'molecular glue.' Within the context of the cytoskeletal-net, tubulin...oscillate between two...states (different shapes or patterns) caused by the *dipole oscillation* of an electron located in its elbow...[C]ontinual movement of these electrons is implicated in the [emergence] of consciousness [awareness], for if this oscillation is restricted by the presence of a large molecule wedged within the tubulin dimer elbow, the [person] loses consciousness. When the restriction is removed, consciousness is regained [see section 13.11.3. Hameroff's model of anesthetics]."

"Hi-speed *biophoton emission* (signaling) throughout the cytoskeletal network...cause[s] this electron oscillation, as well as the resulting conformational change of the tubulin dimer, in response to changing information patterns...Cytoskeletal polymers...undergo coherent, collective conformational oscillations in the nanosecond time scale (one billionth of a second). Hence, new patterns of biophoton activity can influence ion-gated protein channels in neurons resulting in changes in neurosynaptic level signaling and connectivity. The resulting conformational changes in tubulin also give rise to *bio-mechanical* communication and transport in the form of *soliton waves*. These waves are caused by pattern-integrities that propagate through the tubulin network by displacing matter and energy..."

"[N]euro-active proteins -- neurotransmitters, neurohormones and neuropeptides -- can arise due to signal-induced protein production and folding patterns, and combine to make complex molecular signaling profiles that are responsible for emotions, motor movement, perception, memory, thoughts, etc. Temporal coding patterns can also be accomplished by adjusting the frequency and grouping (interspike intervals) of electrochemical impulses...on the neurosynaptic level...[T]hese multileveled and elaborately interconnected pattern-processing mediums give the human neural-net and its interconnecting pattern-making systems the ability to fully incorporate, represent, translate, and transfer all inputs to a given neuron or neural network, and hence the entire organism [in a holistic manner]." (Furman and Gallo, pp. 74-75)

13.8.2. MICROTUBULES, QUANTUM COHERENCE, AND "ORCHESTRATED OBJECTIVE REDUCTION" (Orch OR") THEORY OF CONSCIOUSNESS

Hameroff provides this view of Microtubules in an interview by Horrigan (1997, pp 72-73):

"A cell has a skeleton, somewhat like our body has a skeleton. It's called the "cytoskeleton." Look out the window at those trees. If you put a big sheet over a bunch of closely grouped trees, that would be like a cell. The sheet would be the membrane, but the trees would be the structure inside the cell. The main trunks would be the microtubules and the connections would be microtubule-associated proteins, actin, and so on. But, unlike a forest, the cytoskeletal branches are moving cooperatively, like arms and hands, passing things along from place to place inside the cell. They rearrange themselves to change cell shape, and grow extensions like axons or dendrites. The actual microtubule structure is quite interesting. They are hollow cylinders whose walls look something like hollow ears of corn with kernels in a hexagonal lattice. It occurred to me that the states of each of these kernels in microtubules could represent information, and that microtubules were ideal computers. That was how they were running the show."

"...[M]icrotubules and the cytoskeleton are ...structural, like the body's bony skeleton. However,... microtubules are also the cell's nervous system and circulatory system. They move everything around the cell, organize shape and function, and communicate with membranes and the nuclear DNA. For example, immune cells depend on cytoskeletal microtubules for recognition and response. In neurons microtubules first establish cell shape and synaptic connections, transport materials, regulate those synapses, participate in axonal neuro transmitter release, and transduce membrane receptor effects. They are everywhere, and seem to organize almost everything...[I]f you look at the microtubules that spatially organize the cytoplasm...you see perfectly designed information processing devices..."

"The model of consciousness based on microtubules that Roger Penrose and I have developed has been criticized because we have microtubules in our earlobes and microtubules in our butts. 'Why aren't earlobes and butts conscious?' The answer is that the microtubules in the brain's neurons, besides being denser and more plentiful, are arrayed in parallel, whereas in other cells they radiate outward from the centrosome, or centrioles, next to the cell nucleus. Centrioles, which organize mitosis, are mysterious and elegant organelles made up of microtubules. Because neurons don't divide, the centrioles have disappeared or are hiding, and the microtubules are all arrayed in parallel. The highly parallel arrangement can facilitate computation and quantum coherence. In our model, consciousness requires a critical degree of quantum coherence in parallel arrayed microtubules in neurons. This critical degree allows a prediction as to what evolutionary level of neural complexity will result in consciousness....[T]he work I've done with Roger Penrose predicts a threshold for emergence of conscious experience at a level of microtubule complexity and quantum coherence in roughly hundreds of neurons...."

"In his books Roger [Penrose] talks about Platonism--the idea that mathematical truth, aesthetics, ethics, the perception of beauty, are somehow built into the universe. The implication is that however these are built into the universe, this is what influences the collapse in the objective reduction. So when our thoughts collapse, we're influenced--or we can be influenced--by these Platonistic factors engrained at the Planck scale." (Hameroff, 1997, p 77)

Hameroff and Penrose (1996a abstract): "What is consciousness? Some philosophers have contended that "qualia," or an experiential medium from which consciousness is derived, exists as a fundamental component of reality. Whitehead, for example, described the universe as being comprised of 'occasions of experience.' To examine this possibility scientifically, the very nature of physical reality must be re-examined. We must come to terms with the physics of space-time--as is described by Einstein's general theory of relativity--and its relation to the fundamental theory of matter--as described by quantum theory. This leads us to employ a new physics of *objective reduction*: '**OR**' which appeals to a form of quantum gravity to provide a useful description of fundamental processes at the quantum/classical borderline (Penrose, 1997). Within the **OR** scheme, we consider that consciousness occurs if an appropriately organized system is able to develop and maintain quantum coherent superposition until a specific 'objective' criterion (a threshold related to quantum gravity) is reached; the coherent system then self-reduces (objective reduction: **OR**). We contend that this type of objective self-collapse introduces non-computability, an essential feature of consciousness. **OR** is taken as an instantaneous event--the climax of a self-organizing process in fundamental space-time--and a candidate for a conscious Whitehead 'occasion' of experience. How could an **OR** process occur in the brain, be coupled to neural activities, and account for other features of consciousness? We nominate an **OR** process with the requisite characteristics to be occurring in cytoskeletal microtubules within the brain's neurons"

"In this model, quantum-superposed states develop in microtubule subunit proteins ('tubulins'), remain coherent and recruit more superposed tubulins until a mass-time-energy threshold (related to quantum gravity) is reached. At that point, self-collapse, or objective reduction (**OR**) abruptly occurs. We equate the pre-reduction, coherent superposition ('quantum computing') phase with pre-conscious processes, and each instantaneous (and non-computable) **OR**, or self-collapse, with a discrete conscious event. Sequences of **OR** events give rise to a 'stream' of consciousness. Microtubule-associated-proteins can 'tune' the quantum oscillations of the coherent superposed

states; the **OR** is thus self-organized, or 'orchestrated' ('**Orch OR**'). Each **Orch OR** event selects (non-computably) microtubule subunit states which regulate synaptic/neural functions using classical signalling."

"The quantum gravity threshold for self-collapse is relevant to consciousness, according to our arguments, because macroscopic superposed quantum states each have their own space-time geometries... These geometries are also superposed, and in some way 'separated,' but when sufficiently separated, the superposition of space-time geometries becomes significantly unstable, and reduce to a single universe state. Quantum gravity determines the limits of the instability; we contend that the actual choice of state made by Nature is non-computable. Thus each **Orch OR** event is a self-selection of space-time geometry, coupled to the brain through microtubules and other biomolecules."

"If conscious experience is intimately connected with the very physics underlying space-time structure, then **Orch OR** in microtubules indeed provides us with a completely new and uniquely promising perspective on the hard problem of consciousness."

Hameroff and Penrose, (1996b) summary: "Approaches to understanding consciousness which are based on known and experimentally observed neuroscience fail to explain certain critical aspects. These include a unitary sense of binding, non-computational aspects of conscious thinking, difference and transition between pre-conscious and conscious processing, (apparent) non-deterministic free will and the essential nature of our experience. We conclude that aspects of quantum theory (e.g. quantum coherence) and of a newly proposed physical phenomenon of wave function self-collapse (objective reduction, **OR**, Penrose, 1997) offer possible solutions to each of these problematic features. We further conclude that cytoskeletal microtubules, which regulate intra-neuronal activities and have cylindrical paracrystalline structure, are the best candidates for sites of quantum action and **OR**, and of 'orchestrated **OR**' (**Orch OR**). Accordingly, we present a model of consciousness based on the following assumptions:"

*"Coherent excitations (Fröhlich pumped phonons) among microtubule subunits (tubulins) support 'cellular automaton' information processing in both classical (conformational) and quantum coherent superposition modes. Classical processing correlates with non-conscious, autonomic activity; quantum processing correlates with pre-and sub-conscious activity."

*"The microtubule quantum coherent computing phase is able to be isolated from environmental interaction and maintain coherence for up to 500 msec (pre-conscious processing)."

*"A critical number of tubulins maintaining coherence within MTs for 500 msec collapses its own wave function (objective reduction: **OR**). This occurs because the mass-energy difference among the superpositioned states of coherent tubulins critically perturbs space-time geometry. To prevent multiple universes, the system must reduce to a single space-time by choosing eigenstates. The threshold for **OR** is related to quantum gravity; we calculate it in terms of the number of tubulins coherent for 500 msec to be very roughly 109 tubulins. Larger coherent sets will self-collapse faster, and smaller sets more slowly. Coherent sets which evolve over different time scales and in different brain distributions may be bound in

an effectively simultaneous collapse which creates instantaneous 'now.' Cascades of these events constitute the familiar 'stream of consciousness'".

*"Microtubule Associated Proteins (MAPs) and other tubulin modifications act as 'nodes' to tune microtubule coherence and help to orchestrate collapse. We thus term the specific **OR** proposed to occur in microtubules and intrinsic to consciousness as "orchestrated objective reduction" (**Orch OR**).

*"The **Orch OR** process, which introduces non-computability (Penrose, 1997), results in eigenstate patterns of tubulin conformational states which help direct neural function through the actions of microtubules."

"In providing a connection among 1) pre-conscious to conscious transition, 2) fundamental space-time notions, 3) non-computability, and 4) binding of various (time scale and spatial) superpositions into instantaneous 'now,' we believe **Orch OR** in MTs [MicroTubule] is the most specific and plausible model for consciousness yet proposed."

13.8.3. INSIGHT INTO CELLULAR "CONSCIOUSNESS" by Bruce Lipton

Quoted in its entirety: Bridges Quarterly Magazine for ISSSEEM, 2001, v. 12, #1, pp. 1, 4-6.

Available at: www.brucelipton.com/cellular.php

"Though a human is comprised of over fifty trillion cells, there are no physiologic functions in our bodies that were not already pre-existing in the biology of the single, nucleated (eukaryotic) cell. Single-celled organisms, such as the amoeba or paramecium, possess the cytological equivalents of a digestive system, an excretory system, a respiratory system, a musculoskeletal system, an immune system, a reproductive system and a cardiovascular system, among others. In the humans, these physiologic functions are associated with the activity of specific organs. These same physiologic processes are carried out in cells by diminutive organ systems called *organelles*."

"Cellular life is sustained by tightly regulating the functions of the cell's physiologic systems. The expression of predictable behavioral repertoires implies the existence of a cellular 'nervous system.' This system reacts to environmental stimuli by eliciting appropriate behavioral responses. The organelle that coordinates the adjustments and reactions of a cell to its internal and external environments would represent the cytoplasmic equivalent of the 'brain.'"

Since the breaking of the genetic code in the early 1950's, cell biologists have favored the concept of

genetic determinism, the notion that genes 'control' biology. Virtually all of the cell's genes are contained within the cell's largest organelle, the *nucleus*. Conventional opinion considers the nucleus to be the 'command center' of the cell. As such, the nucleus would represent the cellular equivalent of the 'brain.'"

"Genetic determinism infers that the expression and fate of an organism are primarily 'predetermined' in its genetic code. The genetic basis of organismal expression is ingrained in the biological sciences as a consensual truth, a belief by which we frame our reference for health and disease. Hence the notion that susceptibility to certain illnesses or the expression of aberrant behavior is generally linked to genetic lineage and, on occasions, spontaneous mutations. By

extension, it is also perceived by a majority of scientists that the human mind and consciousness are 'encoded' in the molecules of the nervous system. This in turn promotes the concept that the emergence of consciousness reflects the 'ghost in the machine.'"

"The primacy of DNA in influencing and regulating biological behavior and evolution is based upon an unfounded assumption. A seminal article by H. F. Nijhout (BioEssays 1990, 12 (9):441-446) describes how concepts concerning genetic 'controls' and 'programs' were originally conceived as metaphors to help define and direct avenues of research. Widespread repetition of this compelling hypothesis over fifty years has resulted in the 'metaphor of the model' becoming the 'truth of the mechanism,' in spite of the absence of substantiative supporting evidence. Since the assumption emphasizes the genetic program as the 'top rung' on the biological control ladder, genes have acquired the status of causal agents in eliciting biological expression and behavior (e.g., genes causing cancer, alcoholism, even criminality)."

"The notion that the nucleus and its genes are the 'brain' of the cell is an untenable and illogical hypothesis. If the brain is removed from an animal, disruption of physiologic integration would immediately lead to the organism's death. If the nucleus truly represented the brain of the cell, then removal of the nucleus would result in the cessation of cell functions and immediate cell death. However, experimentally *enucleated* cells may survive for two or more months with out genes, and yet are capable of effecting complex responses to environmental and cytoplasmic stimuli (Lipton, et al., Differentiation 1991, 46:117-133). Logic reveals that the nucleus *can not* be the brain of the cell!"

"Studies on cloned human cells led me to the awareness that the cell's *plasmalemma*, commonly referred to as the *cell membrane*, represents the cell's 'brain.' Cell membranes, the first biological organelle to appear in evolution, are the only organelle common to every living organism. Cell membranes compartmentalize the cytoplasm, separating it from the vagaries of the external environment. In its barrier capacity, the membrane enables the cell to maintain tight 'control' over the cytoplasmic environment, a necessity in carrying out biological reactions. Cell membranes are so thin that they can only be observed using the electron microscope. Consequently, the existence and universal expression of the membrane structure was only clearly established around 1950.

"In electron micrographs, the cell membrane appears as a vanishingly thin (<10nm), tri-layered (black-white-black) 'skin' enveloping the cell. The fundamental structural simplicity of the cell membrane, which is identical for all biological organisms, beguiled cell biologists. For most of the last fifty years, the membrane was perceived as a 'passive,' semi-permeable barrier, resembling a breathable 'plastic wrap,' whose function was to simply contain the cytoplasm."

"The membrane's layered appearance reflects the organization of its phospholipid building blocks. These lollipop-shaped molecules are amphipathic, they possess both a globular *polar* phosphate head (Figure 13.8. A) and two stick-like *non-polar* legs (Figure 13.8. B). When shaken in solution, the phospholipids self-assemble into a stabilizing crystalline bilayer (Figure 13.8. C)."

"The lipid legs comprising the core of the membrane provide a hydrophobic barrier (Figure 13.8. D) that partitions the cytoplasm from the ever-changing external environment. While cytoplasmic integrity is maintained by the lipid's passive barrier function, life processes necessitate the active

exchange of metabolites and information between the cytoplasm and surrounding environment. The physiologic activities of the plasmalemma are mediated by the membrane's *proteins*."

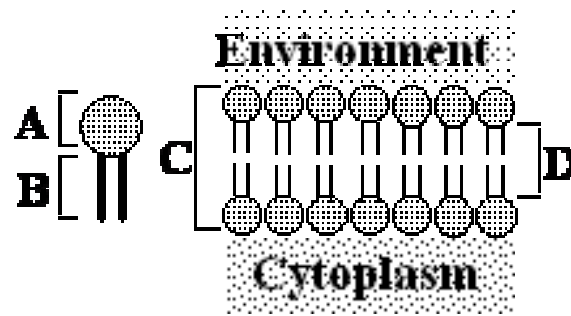


Figure 13.8.

"Each of the approximately 100,000 different proteins providing for the human body is comprised of a linear chain of linked amino acids. The 'chains' are assembled from a population of twenty different amino acids. Each protein's unique structure and function is defined by the specific sequence of amino acids comprising its chain. Synthesized as a linear string, the amino acid chains subsequently fold into unique three dimensional globules. The final conformation (shape) of the protein reflects a balance of electrical charges among its constituent amino acids."

"The three dimensional morphology of folded proteins endows their surfaces with specifically shaped clefts and pockets. Molecules and ions possessing complementary physical shapes and electrical charges will bind to a protein's surface clefts and pockets with the specificity of a lock-and-key. Binding of another molecule alters the protein's electrical charge distribution. In response, the protein's amino acid chain will spontaneously refold to rebalance the charge distribution. Refolding changes the protein's conformation. In shifting from one conformation to the next, the protein expresses movement. Protein conformational movements are harnessed by the cell to carry out physiologic functions. The work generated by protein movement is responsible for 'life.'"

A number of the twenty amino acids comprising the protein's chain are non-polar (hydrophobic, oil-loving). The hydrophobic portions of proteins seek stability by inserting themselves into the membrane's lipid core. The polar (water-loving) portions of these proteins extend from either or both of the membrane's water-covered surfaces. Proteins incorporated within the membrane are called *integral membrane proteins* (IMPs).

"Membrane IMPs can be functionally subdivided into two classes: *receptors* and *effectors*. Receptors are *input* devices that respond to environmental signals. Effectors are *output* devices that activate cellular processes. A family of *processor proteins*, located in the cytoplasm beneath the membrane, serve to link signal-receiving receptors with action-producing effectors."

"Receptors are molecular 'antennas' that recognize environmental signals. Some receptor antennas extend inward from the membrane's cytoplasmic face. These receptors 'read' the internal milieu and provide awareness of cytoplasmic conditions. Other receptors extending from the cell's outer surface provide awareness of external environmental signals."

"Conventional biomedical sciences hold that environmental 'information' can *only* be carried by the substance of molecules (Science 1999, 284:79-109). According to this notion, receptors only recognize 'signals' that *physically* complement their surface features. This materialistic belief is maintained even though it has been amply demonstrated that protein receptors respond to vibrational frequencies. Through a process known as *electroconformational coupling* (Tsong, Trends in Biochem. Sci. 1989, 14:89-92), resonant vibrational energy fields can alter the balance of charges in a protein. In a harmonic energy field, receptors will change their conformation. Consequently, membrane receptors respond to both physical and energetic environmental information."

"A receptor's 'activated' conformation *informs* the cell of a signal's existence. Changes in receptor conformation provide for cellular 'awareness.' In its 'activated' conformation, a signal-receiving receptor may bind to either a specific function-producing *effector protein* or to intermediary *processor protein*. Receptor proteins return to their original 'inactive' conformation and detach from other proteins when the signal ceases."

"The family of effector proteins represent 'output' devices. There are three different types of effectors, *transport proteins*, *enzymes*, and *cytoskeletal proteins*. Transporters, which include the extensive family of *channels*, serve to transport molecules and information from one side of the membrane barrier to the other. Enzymes are responsible for metabolic synthesis and degradation. Cytoskeletal proteins regulate the shape and motility of cells."

"Effector proteins generally possess two conformations: an active configuration in which the protein expresses its function; and a 'resting' conformation in which the protein is inactive. For example, a channel protein in its active conformation possesses an open pore through which specific ions or molecules traverse the membrane barrier. In returning to an inactive conformation, protein refolding constricts the conducting channel and the flow of ions or molecules ceases."

"Putting all the pieces together we are provided with insight as to how the cell's 'brain' processes information and elicits behavior. The innumerable molecular and radiant energy signals in a cell's environment create a virtual cacophony of information. In a manner resembling a biological Fourier transform, individual surface receptors (Figure 13.9. H) sense the apparently chaotic environment and filter out specific frequencies as behavioral signals. Receipt of a resonant signal (Figure 13.9. I, arrow) induces a conformational change in the cytoplasmic portion of the receptor (Figure 13.9. I, arrowhead). This conformational change enables the receptor to complex with a specific effector IMP (Figure 13.9. J, in this case a *channel IMP*). Binding of the receptor protein (Figure 13.9. K) in turn elicits a conformational change in the effector protein (Figure 13.9. L, channel opens)."

"Activated receptors can turn on enzyme pathways, induce structural reorganization and motility or activate transport of uniquely pulsed electrical signals and ions across the membrane."

"Processor proteins serve as 'multiplex' devices in that they can increase the versatility of the signal system. Such proteins interface receptors with effector proteins (Figure 13.9., P in M field). By 'programming' processor protein coupling, a variety of inputs can be linked with a variety of outputs. Processor proteins provide for a large behavioral repertoire using a limited number of IMPs."

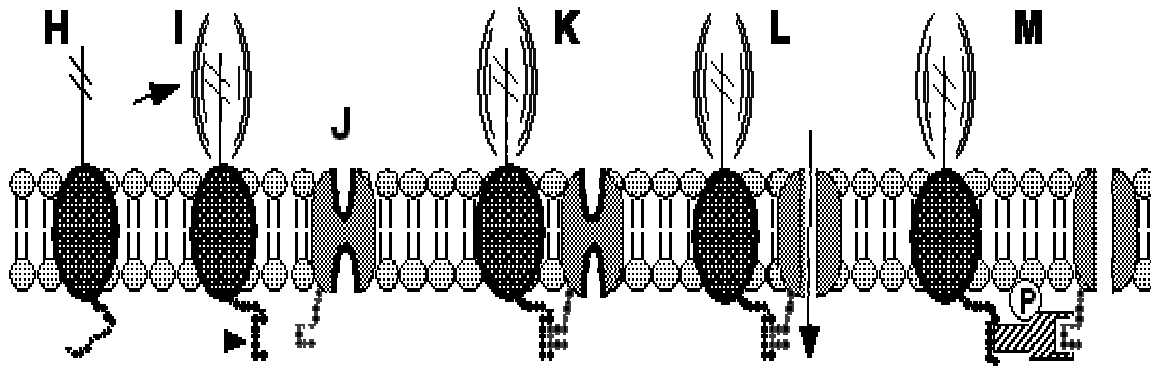


Figure 13.9.

"Effector IMPs convert receptor-mediated environmental signals into biological behavior. The output function of some effector proteins might represent the full extent of an elicited behavior. However, in most cases, the output of effector IMPs actually serve as a secondary 'signal' which penetrates the cell and activates behavior of other cytoplasmic protein pathways. Activated effector proteins also serve as *transcription factors*, signals that elicit gene expression."

"The behavior of the cell is controlled by the combined actions of coupled receptors and effector IMPs. Receptors provide 'awareness of the environment' and effector proteins convert that awareness into 'physical sensation.' By strict definition, a receptor-effector complex represents a fundamental *unit of perception*. Protein perception units provide the foundation of biological consciousness. Perceptions 'control' cell behavior, though in truth, a cell is actually 'controlled' by *beliefs*, since perceptions may not necessarily be accurate."

"The cell membrane is an organic information processor. It senses the environment and converts that awareness into 'information' that can influence the activity of protein pathways and control the expression of the genes. A description of the membrane's structure and function reads as follows: (A) based upon the organization of its phospholipid molecules, the membrane is a *liquid crystal*; B) the regulated transport of information across the hydrophobic barrier by IMP effector proteins renders the membrane a *semiconductor*; and (C) the membrane is endowed with IMPs that function as *gates* (receptors) and *channels*. As a **liquid crystal semiconductor with gates and channels**, the membrane is an information processing *transistor*, an organic *computer chip*."

"Each receptor-effector complex represents a biological BIT, a single unit of perception. Though this hypothesis was first formally presented in 1986 (Lipton 1986, [Planetary Assoc. for Clean Energy Newsletter](#) 5: 4), the concept has since been technologically verified. Cornell and others ([Nature](#) 1997, 387:580-584), linked a membrane to a gold foil substrate. By controlling the electrolytes between the membrane and the foil, they were able to digitize the opening and closing of receptor-activated channels. The cell and a chip are homologous structures.

"The cell is a carbon-based 'computer chip' that reads the environment. Its 'keyboard' is comprised of receptors. Environmental information is entered via its protein 'keys.' The data is transduced into biological behavior by effector proteins. The IMP BITs serve as switches that regulate cell

functions and gene expression. The nucleus represents a 'hard disk' with DNA-coded software. Recent advances in molecular biology emphasize the read/write nature of this hard drive."

"Interestingly, the thickness of the membrane (about 7.5 nm) is fixed by the dimensions of the phospholipid bilayer. Since membrane IMPs are approximately 6-8 nm in diameter, they can only form a monolayer in the membrane. IMP units can not stack upon one another, the addition of more perception units is directly linked to an increase in membrane surface area. By this understanding, evolution, the expansion of awareness (i.e., the addition of more IMPs) would most effectively be modeled using *fractal geometry*. The fractal nature of biology can be observed in the structural and functional reiterations observed among the hierarchy of the cell, multicellular organisms (man) and the communities of multicellular organisms (human society)."

"This new perception on cell control mechanisms frees us from the limitations of genetic determinism. Rather than behaving as programmed genetic automatons, biological behavior is dynamically linked to the environment."

"Though this reductionist approach has highlighted the mechanism of the individual perception proteins, an understanding of the processing mechanism emphasizes the holistic nature of biological organisms. The expression of the cell reflects the recognition of *all* perceived environmental stimuli, both physical and energetic. Consequently, the 'Heart of Energy Medicine' may truly be found in the magic of the membrane.

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13.9. ASSEMBLING GAP JUNCTIONS HEMICHANNELS, MICROWAVE RESONANCE THERAPY (MRT), AND ACUPUNCTURE

(Dear reader, this section is NOT written in intelligent lay-person English.)

Jovanovic-Ignjatic and Rakovic (1999, p 8): Microwave Resonance Therapy (MRT) "... is a novel medical treatment developed in the former USSR, which represents a synthesis of the ancient Chinese traditional knowledge in medicine (acupuncture) and recent breakthroughs in biophysics. Affecting the appropriate acupuncture points by a generator of high frequency microwaves (52-78 GHz), remarkable clinical results of the treatment were demonstrated in surgery, orthopedics and traumatology, cardiovascular disorders, urology, gynecology, dermatology, gastroenterology, pulmonology, upper respiratory tract, cardiology, neurology, and oncology during the last decade - the MRT being contraindicated only in the cases of acute pain in abdomen demanding an operation, pregnancy, and menstruation cycle. The high effectiveness of the MRT has also been confirmed in our practice, ...revealing significant improvement in 81.5%, moderate improvement in 15.1%, and insignificant changes in only 3.4% cases.

Jovanovic-Ignjatic and Rakovic (1999, p 1-2): "The yin-yang concept of acupuncture, as a network of energy-information processes of an organism, originating from embryological development, represents one of the most specific and most useful segments of the renowned Chinese traditional medicine...Indian traditional medicine, and especially one of its most prominent representatives, swara yoga, is also acquainted with an energy system analogous to the Chinese acupuncture system; in Indian terminology the qi is known as prana, and meridians as nadis (14 of them being basic, like in acupuncture, although three of them are of special medical and spiritual significance [this appears similar to the basis of REBSM which uses triple warmer, spleen and central/governing meridians as Radiant Circuits]."

"Besides its practical medical aspects, Chinese traditional medicine is deeply colored with mystical connotations, which is one of the reasons why Western science has been reluctant to accept experiences of Eastern tradition. Another reason is that within the 12 visceral organs corresponding to the 12 paired meridians, Chinese tradition has not included the brain and endocrine glands: however, in the past few decades it was found that the acupuncture system was in close functional interaction with both the central nervous system and endocrine system, as well as with peripheral and autonomic nervous systems. The final reason was the lack of a clear anatomical basis of the Chinese acupuncture system; however, some investigations of gap junctions (specific intercellular channels...) have shown their increased concentration inside the acupuncture and meridians for an order of magnitude and their role in the epithelial conception of genesis of the system of vital meridians and their acupuncture points."

"It is well known that cell membranes have an extremely significant role in communications between cells. The evolutionarily older type of intercellular communication is achieved through gap junctions, transporting small metabolites and secondary messengers between inexcitable cells, and also transporting small ions between excitable cells (of the cardiac muscle, smooth muscle, epithelial liver cells, neurons with electrical synapses, and acupuncture points and meridians). The evolutionarily younger type of intercellular communication is mediated by electrochemical transmitters, through neurons separated by a cleft. Whether anions and cations equally flow through gap junctions has not been experimentally established to date, although empirical evidence of swara yoga, combined with the evidence of the physiological influence of ions in air, suggest that anions

dominantly flow through the left circulatory part of the acupuncture system, while cations dominantly flow through its right circulatory part... [In g]ap junctions... the normal intercellular separation of 20 nm is lowered to 3.5 nm at the gap junction of excitable cells, which enables direct transmission of electrical signals by ionic currents flowing through such channels (electrical synapses). All gap junctions consist of a pair of cylinders (connexons), one in the presynaptic and the other in the postsynaptic cell. The cylinders meet in the gap between the two membranes and contact, by means of homophilic (cell specific) interactions, to establish a communicating channel (~ 1.5 nm in diameter) between the cytoplasm of the two cells. Each cylindrical connexon (7~.5 nm in length) is made of six identical protein subunits (connexins) - which have a function to self assemble connexon hemi-channels and to recognize the counterpart hemi-channel and complete a conductive channel. The whole such process is very flexible and depends on the electrochemical potential of the cell; the very conductivity of the gap junction can be modulated by intracellular pH-factor, Ca(2+)-ions, neurotransmitters and second messengers, and even by voltage - which can change the conformational state of the connexon (like the shutter in a camera)."

"A better organization of cell structures and an ionic basis of the qi entity of the acupuncture system is also suggested by an order of magnitude higher skin electrical conductivity of the acupuncture points in respect to the surrounding tissue, as well as much higher reabsorption of the air ions in these points - implying higher concentration of ions and gap junctions in the acupuncture points and meridians, too."

Jovanovic-Ignjatic and Rakovic (1999, p 4): "[The] quantum-like coherent characteristics of MRT [Microwave Resonance Therapy] inspired Sit'ko and coworkers to propose a quantum physics of the alive [organisms] ..., based on nonequilibrium thermodynamics and nonlinear electrodynamics of novel dynamically stable spatio-temporal biological structures as macroscopic quantum systems with nonlocal self consistent macroscopic quantum potentials, which can give rise to nonlinear coherent EM MW [ElectroMagnetic MicroWave] long-range maser-like excitations of a biological nonlinear absorption medium with the cells as active centers. In the framework of this model, acupuncture meridians might be related to eigen frequencies and spatio-temporal eigen waves distributions of every biological quantum system, being its individual characteristics."

"The above quantum picture can be more simply visualized ... by considering the acupuncture system as a dynamic structure assembled at the locations of the maxima of the quantum interference three-dimensional (3D) standing waves resulting from reflections from the skin of the nonlinear coherent EM MW [ElectroMagnetic MicroWave] Fröhlich excitations... of strongly polarized molecular subunits in the cell membranes and cytoplasmatic proteins. This is supported also by other investigations which suggest that formation of gap junctions (of higher density at acupuncture points and meridians...), which involves a gating process as well as the assembly of connexon hemichannels (or even connexon monomers) which reside in the membrane prior to joining with a counterpart in an opposite cell..., might be stimulated at spatio-temporal maxima of the MW EM field of the organism (similarly to voltage-sensitive conductivity of gap-junctions...)."

"In that context the explanation for the efficacy of the MRT as a noninvasive biophysical medical treatment should be sought...: some disorders in the organism (related to local changes of dielectric properties of tissues and organs) give rise to deformation in the standing wave structure of the MW EM field of the organism, which influences corresponding changes in the spatio-temporal structure of the acupuncture system, and consequently in the resonance frequencies of its meridians, resulting

in some disease. During the therapy, applying the MW source at a corresponding acupuncture point the excited meridian of the patient's acupuncture system relaxes to the previous healthy condition while reaching its normal resonance frequency responses upon the wide spectrum MW source -- and following physiological mechanisms of acupuncture regulation (via nervous and endocrine systems...), the organism biochemically overcomes the disease."

"The afore-mentioned resonance frequency changes can be monitored indirectly by searching for the MW resonance frequency of the meridian before and during the MRT treatment, using coherent MW generators with manually changeable frequency...: it should be noted that sensory response to (gradually changing) resonance frequency decreases during recovery, practically vanishing when regaining the normal healthy condition. This suggests that the healthy condition might be considered as an absolute minimum (ground state) of Sit'ko's nonlocal self consistent macroscopic quantum potential of the organism, with some disorders of an acupuncture system corresponding to higher minima of the (spatio-temporally changeable) potential hypersurface in energy-configuration space, which possibly explains the higher sensory responses of the more excited (more disordered) acupuncture system and the poor MRT sensory response of the healthy acupuncture system already in the ground state..."

13.10. THE BODY AS LIQUID CRYSTALS AND QUANTUM HOLOGRAPHIC BODY

In 1984, A. Antonovsky wrote an article titled "The sense of coherence as a determinant of health." Mae-Wan Ho has been researching the quantum holonomic biological aspect of this "sense of coherence" and concludes that "coherence" is the essence of organismic health. It is defined by the numerous properties originating at the quantum level and manifesting at the total organism level. Oschman's book (2000) goes into considerable detail on this topic (see section 11.7. of this paper)

"A medical physicist in the United States, Cho Zang-Hee, who pioneered the proton emission tomography (PET) scanner, had his curiosity aroused ..., when he injured his back and found almost instant relief with acupuncture treatment. So he started carrying out experiments with functional magnetic resonance imaging (fMRI) on ...-- volunteer medical students. He flashed a light in front of them and, as expected, the visual cortex of the brain lit up on the fMRI. Then, Cho had an acupuncturist stick a needle into one of the acupoints at the side of the little toe, which are supposed to be connected with the eye. In one person after another, the visual cortex lit up, just as if they had been stimulated with a flash of light. Inserting the needle into a non-acupoint in the big toe had no effect." (Ho 1999, p 1)

"...[A] body consciousness possessing all the hallmarks of consciousness -- sentience, intercommunication and memory -- is distributed throughout the entire body. Brain consciousness associated with the nervous system is embedded in body consciousness and is coupled to it. Under normal, healthy conditions, body and brain consciousness mutually inform and condition each other. The unity of our conscious experience and our state of health depends on the complete coherence of brain and body. Traditional Chinese medicine based on the acupuncture meridian system places the emphasis of health on the coherence of body functions which harmonizes brain *to* body. This makes perfect sense if one recognizes the brain as part of the body. Western medicine, by contrast, has yet no concept of the whole, and is based, at the very outset, on a Cartesian divide between mind and brain, and brain and body. Because there is no concept of the organism as a whole, there is, in effect, no theory of health, only an infinite number of disease models, each based

on the supposed defect of a single molecular species. There is an urgent need to develop a theory of health for proper delivery of healthcare in the next millennium." (Ho 1999, p 8)

"...[T]he key to living organisation is not so much energy flow as energy storage under energy flow. Furthermore, the organism has somehow managed to close the loop of energy storage to become a self-maintaining, self-reproducing life-cycle...The organism is thus a system in which energy is *stored* in a *coherent* form, the energy remaining coherent as it is mobilized throughout the system....Coherent energy,...is stored in a range of space-times in which it remains coherent, and is tied to the characteristic space-times of natural processes....Coherent energy is mobilised within the organism with minimum dissipation, which means it generates minimum entropy. This depends on a *symmetrical coupling* of energy yielding and energy requiring processes within the living system. Symmetrical coupling involves a complete reciprocity, so that the effects of one process on the other are the same, and furthermore, they can reverse roles so the giver of energy becomes the receiver and *vice versa*....as one cycle of activity is running down, it is charging up a second cycle, so that the role can be reversed later. Similarly, as disorder is created in some part of the system, a kind of superorder appears in elsewhere, which can restore order to the first part." (Ho 1999, pp 2-4).

"[T]he organism can be conceived as a quantum superposition of coherent activities, with instantaneous (nonlocal) noiseless intercommunication throughout the system. The flow of qi in meridian theory corresponds rather well to the mobilisation of coherent energy. Coherent energy is vital energy, and it arises because the organism is especially good at capturing energy, storing and mobilising it in a coherent form.... Coherent energy is stored everywhere within the system over the entire range of space-times. Consequently any subtle influence arising anywhere within the system will propagate over the entire system and get amplified to global effects. In other words, the system, by virtue of being full of coherent energy everywhere, will be ultrasensitive to very weak signals. This may be the basis of all forms of subtle energy medicine." (Ho 1999, p 4)

"...[O]rganisms are so dynamically coherent at the molecular level that they *appear* to be crystalline...So long as the motions among the molecules in the cells and tissues are sufficiently coherent, they will appear to be statically ordered, or crystalline, to the light passing through....[T]he living organism is coherent beyond our wildest dreams, with dynamic order that extends from the molecular to the macroscopic."

"There is a dynamic, liquid crystalline continuum of connective tissues and extracellular matrix linking directly into the equally liquid crystalline cytoplasm in the interior of every single cell in the body. Liquid crystallinity gives organisms their characteristic flexibility, exquisite sensitivity and responsiveness, thus optimizing the rapid, noiseless intercommunication that enables the organism to function as a coherent, coordinated whole. In addition, the liquid crystalline continuum provides subtle electrical interconnections which are sensitive to changes in pressure, pH and other physicochemical conditions; in other words, it is also able to register 'tissue memory'. Thus, the liquid crystalline continuum possesses all the qualities of a 'body consciousness' that may indeed be sensitive to all forms of subtle energy medicines including acupuncture." (Ho 1999, p 5)

"...[C]onnective tissues may also be largely responsible for the rapid intercommunication that enables our body to function effectively as a *coherent* whole, and are therefore central to our health and well-being. The clue to the intercommunication function of connective tissues lies in the

properties of *collagen*, which makes up 70% or more of all the proteins of the connective tissues. Connective tissues, in turn form the bulk of the body of most multicellular animals. Collagen is therefore the most abundant protein in the animal kingdom." ...[C]ollagens ...have dielectric and electrical conductive properties that make them very sensitive to mechanical pressures, pH, and ionic composition and to electromagnetic fields." (Ho 1999, p 5)

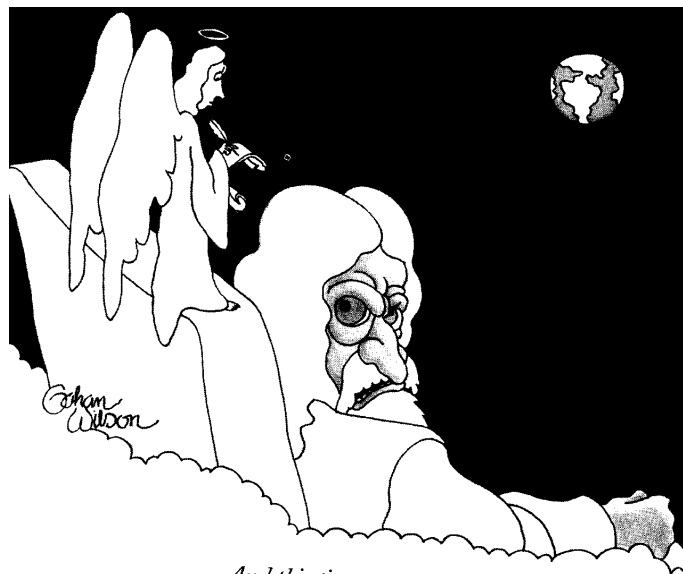
"A major factor contributing to the efficiency of intercommunication is the structured, oriented nature of collagen liquid crystalline fibres. Each connective tissue has its characteristic orientation of fibrous structures which are clearly related to the mechanical stresses and strains to which the tissue is subject. This same orientation may also be crucial for intercommunication. Aligned collagen fibres in connective tissues provide oriented channels for electrical intercommunication, and are strongly reminiscent of acupuncture meridians in traditional Chinese medicine.... [A]cupoints typically exhibit 10 to 100-fold lower electrical resistances compared with the surrounding skin, and may therefore correspond to singularities or gaps *between* collagen fibers, or, where collagen fibers are oriented at right angles to the dermal layer." (Ho 1999, p 7)

"...[P]roton jump-conduction is a form of semi-conduction in condensed matter and much faster than conduction of electrical signals by the nerves. Thus the 'ground substance' of the entire body may provide a much better intercommunication system than the nervous system. Indeed, it is possible that one of the functions of the nervous system is to slow down intercommunication through the ground substance." (Ho 1999, p 8)

13.11. THE ROLE OF FREQUENCIES: LIGHT AND SOUND ("VIBS") (A planned section)

13.11.1. INTRODUCTION

13.11.2. THE HOMOLOGOUS RELATIONSHIPS BETWEEN MOVEMENTS OF SOLAR SYSTEM BODIES, AUDIBLE PITCH AND LIGHT FREQUENCIES



RELATIONS BETWEEN THE PERIODS OF THE PLANETS' ROTATION ABOUT THE SUN AND THE AUDIBLE AND VISIBLE FREQUENCY REALMS

from Cousto, H. (1987/1988) (trans. C. Baker and J. Harrison) The Cosmic Octave: Origin of Harmony, Planets-Tones-Colors. LifeRhythm, (pp. 108-111)

Planet	Period (μ) in days	(f_t) in Hz	(n) of octave	Name of tone	Corresponding tuning pitch A' in Hz	(f_s) in Hz times 10^{14}	(p) number of octave	Wave length (λ) in micro-meters	Color
Mercury	87.969	141.27	30	D	423.34	6.213	72	.483	Blue
Venus	224.7008	221.23	32	A	442.46	4.865	73	.616	Orange
Earth	1 year tropical	136.10	32	C \sharp	432.10	5.986	74	.501	Blue-green
Mars	686.9798 (ca. 2 years)	144.72	33	D	433.67	6.365	75	.471	Blue
Jupiter	4332.588 (ca. 12 years)	183.58	36	F \sharp	436.62	4.037	77	.743	Red
Saturn	10,759.21 (ca. 30 years)	147.85	37	D	433.04	6.502	79	.461	Blue
Uranus	30,685.93 (ca. 84 years)	207.36	39	G \sharp	439.37	4.559	80	.685	Orange-red
Neptune	60,187.64 (ca. 165 years)	211.44	40	A	422.87	4.650	81	.645	Orange-red
Pluto	90,737.2 (ca. 248 years)	140.25	40	C \sharp		6.168	82	.486	Blue
Moon-Synodic	29.530588	210.42	29	G \sharp	445.86	4.627	70	.648	Orange-red
Moon-Sidereal	27.321661	227.43	29	A \sharp	429.33	5.001	70	.599	Yellow-orange
Sun	Theory	126.22	8 down	C					Light green
Average day	1 day = 24 hours	194.18	24	G	435.92	4.270	65	.702	
Sidereal day	23 hours 56 mins 4.091 secs.	194.71	24	G	437.11	4.282	65	.700	Orange-red
Platonic year	25,920 years	344.12	48	F	433.65	7.567	89	.396	Red-violet

Translating from solar system body's movement (period) to Sound (frequency, Hz)

From the period (μ) the reciprocal value $1/\mu$ is formed. This, multiplied by n octaves, yields the frequency in the audible range: $[f_t = (1 \div \mu) (2^n)]$. Then the chromatic note (based on A' of 435 Hertz) which lies closest to this frequency is located... From the note thus ascertained the semitones to A' are counted. When there are m semitones, the chromatic A' which correlated to (f_t) can be calculated with the formula ($f_t \cdot 12 \cdot 2^m$). Electronic tuning machines with a frequency indicator for the note A' can then be attuned accordingly

Translating from audible sound (pitch, Hz) to the frequency of Light (color)

The corresponding frequency of light in the visible range is attained by multiplying the reciprocal value ($1/\mu$) of the period (μ) with p octaves according to the formula $(1 \div \mu) (2^p)$. The formula for the frequency in the visible range is therefore $f_s = (1 \div \mu) (2^p)$. The wave length (λ) is calculated from the equation $\lambda = c/f$, where c = the speed of light.

Definitions:

Earth: *Average Solar Day* = 24 hours. *Sidereal Day* = the daily rotation of the firmament (at the end of a sidereal day the same stars reach their highest point, the upper culmination above the horizon). It's about 4 minutes shorter than the average solar day. *Tropical Year* = the period of time from one sun's passage of the spring equinox till the next (365.242 198 79 days). *Platonic Year* = the amount of time (about 25,920 years) the axis of the earth takes to describe a full circle, the vernal equinox journeying through each of the signs of the zodiac in this time. The vernal equinox is the position of the sun at the beginning of spring. It takes an average of 2,160 years to travel through a sign of the zodiac. This period of time is known as an "age."

Moon: *Sidereal Month* = the time between the moon's two successive passings of the same star (a duration of 27 days, 7 hours, 43 minutes. 4.7 seconds.) *Synodic Month* = the time between two moon phases of the same kind (a duration of 29 days, 12 hours, 44 minutes. and 2.8 seconds).

13.11.3. BIOPHOTONS AS A BIOLOGICAL COMMUNICATION MODE

A planned section on F-A. Popp (in McTaggart,2002, chap3)

13.11.4. THE VISUAL SYSTEM'S ROLE IN CONTEMPLATIVE PRACTICES

A planned section on A.I. Reader, III (1995)

14. BECKER'S DISCOVERY OF THE DUAL (ANALOG AND DIGITAL) NERVOUS SYSTEM

Becker, whose specialty is orthopedics, began his search for the mechanisms involved in healing, especially bone healing.(see also Jacobson et.al., 2000) He found that the orthodox version of the nervous system could not account for the phenomena of regeneration, healing, pain perception and control. Also there was no satisfactory explanation for the interface of the nervous system with the immune/health system, the so called "placebo effect" and how beliefs and thoughts could effect changes in the nervous system. The same was true for all the "newer" (to Western orthodox thought) systems of health and pain control such as acupuncture, herbal remedies, healing with magnets and light/color/sound/imagery. Until very recently all of this was either relegated to superstition and "primitive beliefs and practices" (some have a 5000 year history of success but to the arrogant orthodox fundamentalists this doesn't count) or they are just left in scientific limbo using the powerful "peer review" censorship method. (Siepmann, 2001, Smith, 1997)

Becker's proposal is that the brain operates in both an Analog and Digital manner. To quote Becker (1985 and 1990a) (which I do a lot since his writing is very clear): "In both the computer and the brain, the basic signal is a digital one, a single pulse. The information is coded by the number of pulses per unit of time, where the pulses go, and whether or not there are more than one channel of pulses feeding into an area...The digital system works extremely fast, and it can transmit large amounts of information as digital 'bits' of data."

"[T]he first living organisms...must have had a much simpler mechanism for transmitting information. The first living organism did not have sensory organs, and it wasn't much concerned with thinking great thoughts. What it needed was a way to know when it was injured and the means to efficiently repair itself, along with the ability to relate to the important aspects of its environment and other living organisms...Since there was no requirement for quick action or for the transmission of large amounts of sophisticated information, it could make do with a much simpler system of *analog* data transmission and control."

"Before digital computers, there were analog computers. These operated in exactly the way I believe the first living organisms did. The analog computer works by means of simple DC currents, with the information coded by the strength of the current, its direction of flow, and slow, wavelike variations in its strength. While this system is slow and is incapable of transmitting large amounts of data, it is extremely precise and works well for what it is designed to do."

"If the first living organisms used an analog type of data-transmission system and if such a system is still used for injury repair [this is the major area of research interest of Becker as an orthopedic surgeon], then the entire analog system must be present...as part of our entire data-transmission and control system. The brain may thus operate as a hybrid computer, with a very important analog part that operates by means of DC electrical currents. This concept provides us with an entirely new way to look at the old brain/mind/body conundrum." (Becker, 1990a, p. 59)

"[W]e...conclude that a more primitive, analog data-transmission and control system still exists in the body, located in the perineural cells and transmitting information by means of the flow of a semiconducting DC electric current [see figure 10.1]. This system appears to have been the original

data-transmission and control system present in the earliest living organisms. It senses injury and controls repair, and it may serve as the morphogenetic field itself. It controls the activity of body cells by producing specific DC electrical environments in their vicinity. It also appears to be the primary system in the brain, controlling the actions of the neurons in their generation and receipt of nerve impulses. In this fashion it regulates our level of consciousness and appears to be related to decision-making processes." (Becker, 1990a, p. 65)

14.1. COMPARISON OF THE ANALOG AND DIGITAL NERVOUS SYSTEMS

Figure 14.1 The comparison of the "dual" nervous systems is given below:

DIGITAL NERVOUS SYSTEM (DNS)	ANALOG NERVOUS SYSTEM (ANS)
"Central Nervous System" CNS "Peripheral Nervous System" PNS (Sensory/Motor and Autonomic)	"Perineural Nervous System" "Parallel Nervous System"
The current popular orthodox model	Becker's and others' additional system
Uses neurons as the basic structural element: Sensory, Motor and Inter-Neurons	Uses perineural cells as the basic structural elements: Glial and Ependymal cells (and possibly cerebral spinal fluid) in the CNS, and Schwann cells in the PNS
Digital encoding: nerve impulses	Analog encoding: nervous system and EM fields; sensitive to very small EM current levels
Electro-chemical/Mechanical ionic current (AC: ion interchange process). Uses EEG ElectroEncephloGram measures	Electro-magnetic/Information semi-conduction current (DC and semi-conductive process). Uses MEG: MagnetoEncephloGram measures (i.e. the SQUID: Superconducting Quantum Interferometric Device)
More recent development in evolution for more detailed, precise and swift information processing such as perception, thinking, language and other so called higher mental processes. Through language and imagery (e.g. hypnotism and visualization etc.) it can direct the Analog Nervous System to do various tasks such as healing, health enhancement, recall "unconscious" memories.	The first, more basic and 'primitive' negative feedback control system for healing and holistic, integrative, and "un-conscious" information processing; responsive to environmental rhythms and EM fields and generates and controls the biological rhythms necessary for life; provides the background and support for the Digital Nervous System so that it functions in an integrated and coordinated fashion; "preps" the DNS for performance.

"Direct evidence for the perineural DC system has been accumulating gradually for several decades. Electric currents were detected in the glial cells of rat brains as long ago as 1958, and good (though long-ignored) measurements of direct currents in the frog's brain go back to....the early 1940's." (Becker and Selden, 1985, p. 239) In support of the analog semi-conductive model, Becker says that "[e]lectron microscope work has shown that the cytoplasm of all Schwann cells is linked together through holes in the adjacent membranes, forming a syncytium that could provide the uninterrupted pathway needed by the current. The other perineural cells--the epedyma and glia-- are probably connected in the same way, for syncytial links have recently been found...Recent use of selective radiation to isolate Schwann cells has shown that they, and not the neuron fibers, supply the nerve stimulus essential to regeneration." (Becker and Selden, 1985, p. 239) (see Figures 14.2&14.3)

"All the perineural cells are related and arise, embryologically, from the same basic cell line (the ectoderm) as the nerve cells and skin cells. Anatomically, the perineural cells appear to be a system of their own...[T]he perineural cells can generate electrical potentials and pass them along from one to another...[T]he perineural-cell system, extending throughout the whole body exactly as the nerves do, functions as a primitive communication system." (Becker, 1990a, p. 63) In the research on bone healing, Becker's specialty, he found that "[t]he perineural cells -- in this case, the Schwann cells -- carry the electrical signals that cause fractures to heal. The nerve has nothing to do with it." (Becker, 1990a, p 64)

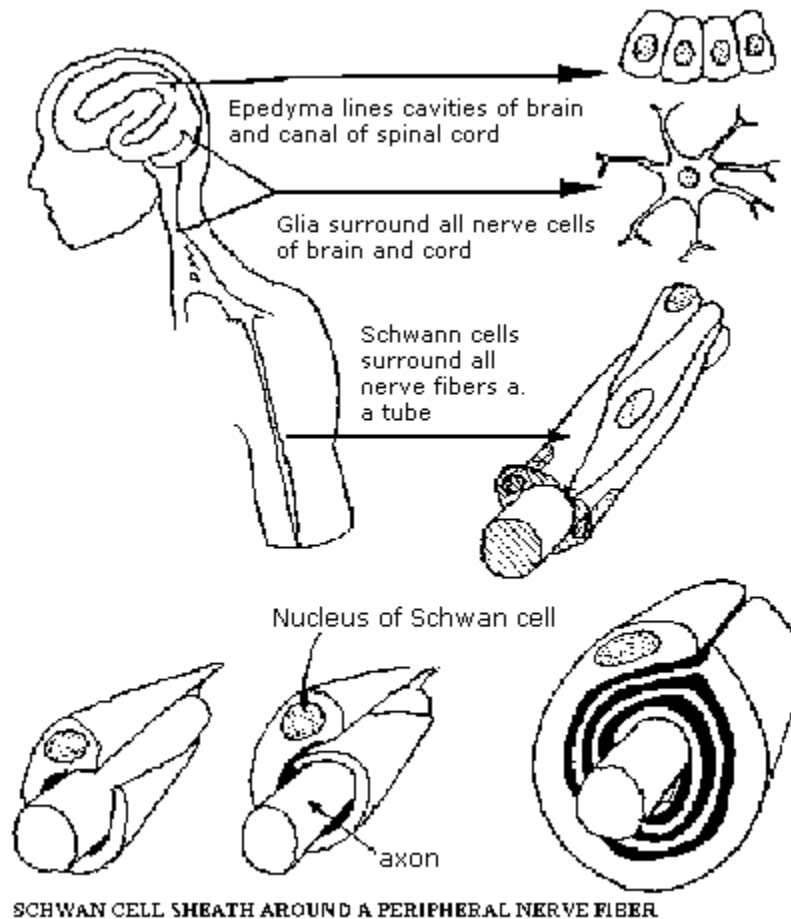
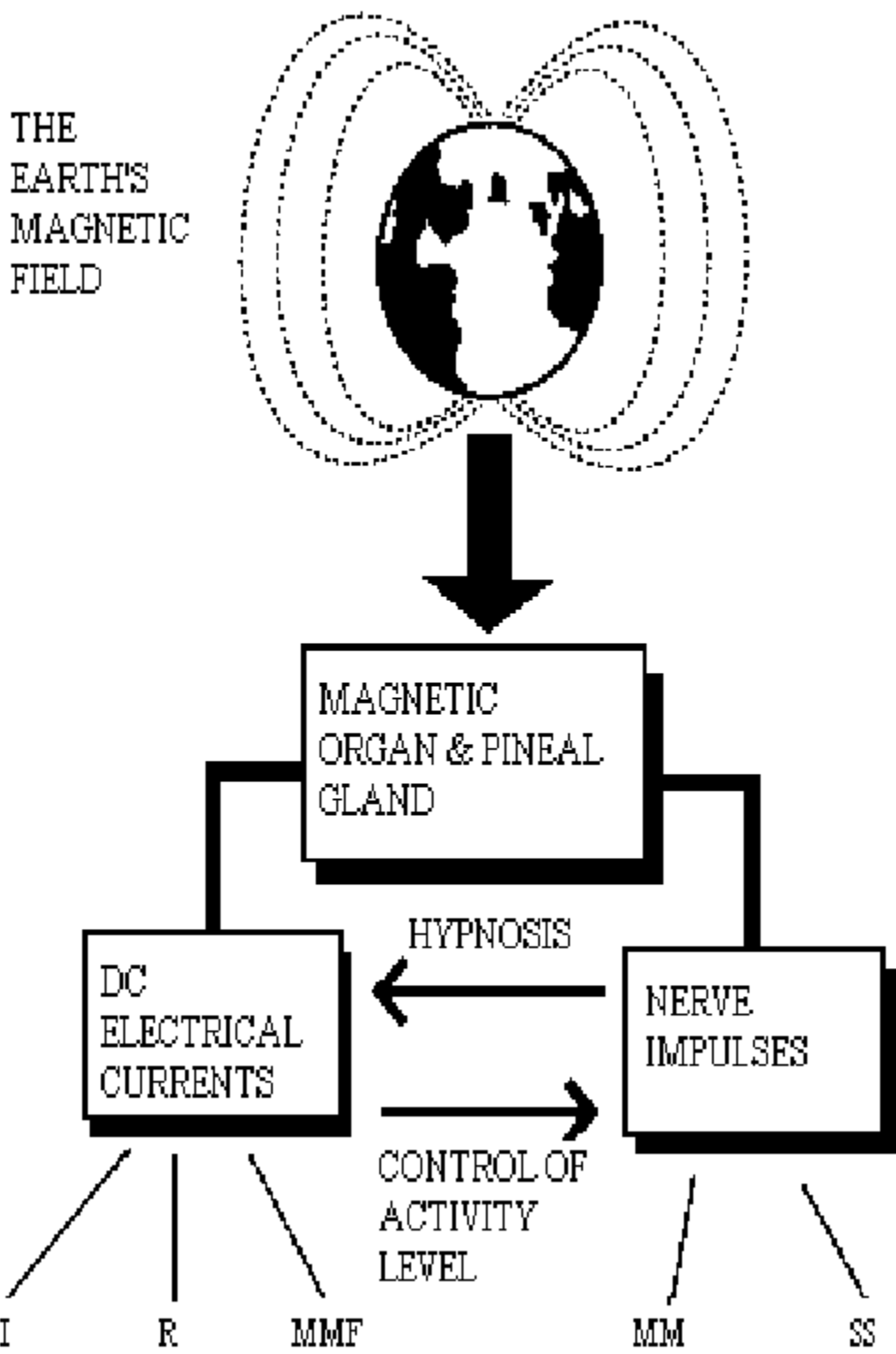


Figure 14.2 from Becker and Selden, 1982, p. 205, Anatomy of the Perineural System



I= Injury R= Repair MMF= MEG Magnetic Field MM= Muscle Movement SS= Special Senses: Vision, Hearing, Touch, Etc.

Figure 14.3 from Becker, 1990, p. 80. Schematic outline of the dual nervous system's relation to the environment

14.2. EXTERNAL ELECTRO MAGNETIC FIELDS

"Any electric current automatically generates a magnetic field around itself. Hence, as perineural current conveys information in its fluctuations, it must be reflected by a magnetic field around the body, whose pulsing would reveal the same information..."

"[I]n 1971 Dr. David Cohen of MIT's Francis Bitter National Magnet Laboratory...first used the SQUID [Superconducting Quantum Interferometric Device] to measure the human head's magnetic field. Two kinds of magnetic fields have been found. Quickly reversing AC fields are produced by the back-and-forth ion currents in nerve and muscle. They're strongest in the heart, since its cells contract in synchrony. The SQUID has also confirmed the existence of the direct-current perineural system, which, especially in the brain, produces steady DC magnetic fields one billionth the strength of earth's field of about one-half gauss..."

"[T]he magnetoencephlogram (MEG) -- a recording of changes in the brain's field analogous to the EEG -- is often a more accurate reflection of mental activity than the EEG. Because the magnetic field passes right through the dura, skull bones, and scalp without being diffused, and MEG locates the current course more accurately than EEG measurements..."

"...[T]he MEG research so far seems to be establishing that every electrical evoked potential is accompanied by a magnetic evoked potential. This would mean that the evoked potentials and the EEG of which they're a part reflect true electrical activity, not some artifact of nerve impulses being discharged in unison, as was earlier theorized. Some of the MEG's components *could* come from such additive nerve impulses, but other aspects of it clearly indicated direct currents in the brain, particularly the central front-to-back flow. The MEG doesn't show the EEG's higher-frequency components, however, suggesting that some parts of the two arise from different sources." (Becker, 1985, pp. 239-241)

Some of the most dramatic examples of the external electromagnetic field is in research on "External Qi Gong" (or Chi Gong) and the development of the "Qi Gong Information Machine" and the "Infrasonic Qi Gong Machine" (China Healthways Institute). "To explore the relationship between electromagnetism and the Chi Gong phenomenon, doctors at the Huazhong Normal University in Wuhan, China, used NMR [Nuclear Magnetic Resonance] in an attempt to determine whether Chi Gong Masters give off any electromagnetic radiation. They studied the effects of Chi Gong 'treatment' on the complex, bioactive, organic, phosphorus-containing chemical o-n-propyl-o-allylthiophosphoramidate ...chosen because it produced a well-characterized NMR spectrum in its normal state. However, if exposed to a low-strength electromagnetic field, the chemical would absorb the energy, and certain atomic 'bonds' in its structure would be altered. This change would result in a specific recordable change in the NMR spectrum. The extent of the change in the NMR spectrum indicated the amount and the site of structural change in the chemical molecule..."

"In the experiments, the chemical substance was enclosed in a sealed glass container, and Chi Gong masters were asked to 'treat' it, holding their hands a certain distance away from the container. The NMR spectrum was recorded before the treatment and found to be normal. Following the treatment, the NMR spectrum changed significantly; the extent of the alternation in the NMR spectrum could

be increased by repeating the Chi Gong exposure...[see Figure 14.4, Figure 4-2 from Becker, 1990a, p. 113)]

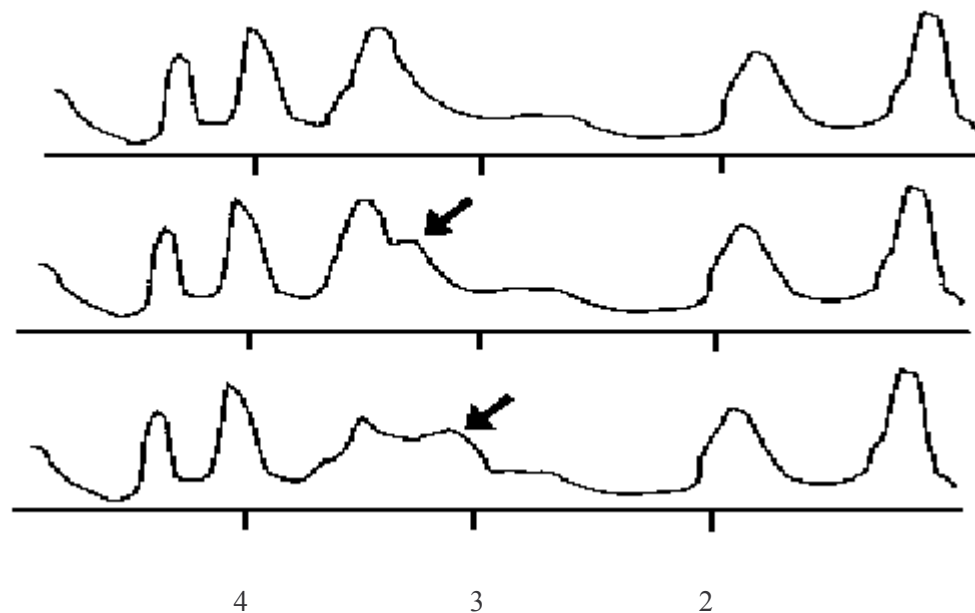


Figure 14.4 from Becker, 1990a, p. 113

NMR scans of the chemical. *Top*, natural-state NMR; *Middle*, after first Chi Gong treatment; *Bottom*, after second Chi Gong treatment. The resonance that had peaked at 2.5 before treatment broadened and showed a new peak (arrow) closer to 3 following the first treatment. The second treatment resulted in a decline in the original 2.5 peak, and the second peak increased in size and moved closer to 3. These NMR changes could be related to an increasing alternation in a specific part of the structure of the chemical molecule.

"The conclusion that may be reached from the Chinese studies is that the healer phenomenon has a basis in physical reality, and that some form of electromagnetic energy is unquestionably involved. The results indicate that the healer gives off electromagnetic energy from his hands during the treatment process." (Becker, 1990a, pp. 112-114) Both the "Qi Gong Information Machine" and the "Infratonic Qi Gong Machine" are based on this type of research. They measured the emissions from 20 Qi Gong masters, recorded them, took some type of average, transferred this to electronic circuitry on a "chip", put it into a machine which duplicates the emissions and you have your very own set of Qi Gong masters in a box!! (see Figure 14.5, a picture of the "Infratonic Qi Gong Machine")

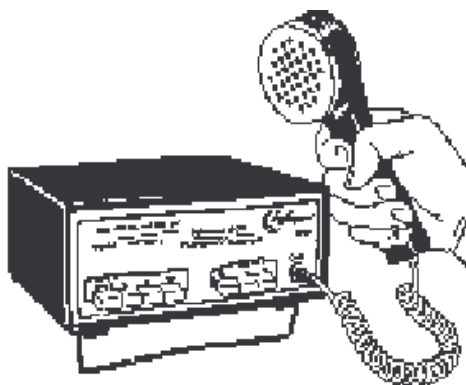


Figure 14.5 The Infratonic QGM (Qi Gong Machine) from China Healthways Institute, 115 N. El Camino Real, San Clemente, CA 92672. Email: <chi@exo.com>. Website: <<http://www.chinahealthways.com>>

14.3. INTERNAL ELECTRO MAGNETIC FIELDS

"Since every reaction and thought seem to produce an evoked potential, the DC system seems directly involved in every phase of mental activity. At the very least, the electric sheath acts as a bias control, a sort of background stabilizer that keeps the nerve impulses flowing in the proper direction and regulates their speed and frequency. But the analog structure probably plays a more active role in the life of the mind. Variations in the current from one place to another in the perineural system apparently form part of every decision, every interpretation, every command, every vacillation, every feeling, and every word of interior monologue, conscious or unconscious, that we conduct in our heads." (Becker and Selden, 1985, pp. 239-241)

"...[W]hen a human subject is told to make a certain muscular movement after being given a signal, there is an increase in negative DC after the signal, but... this occurs almost a half-second *before* the muscular action is performed. It appears that the DC is somehow involved in getting the neurons ready to fire the command to move the muscles. This...'readiness potential,' seems to imply that the DC system *commands* the nerve-impulse system...[I]t seems clear that the DC-potential system in the brain is activated prior to the nerve-impulse system, and that the latter may depend upon the former's being in a particular electronic state. The DC system thus appears to be, in fact, the place where the actual command decision is made." (Becker, 1990a, p. 65)

Becker has researched the phenomenon of the Hypnotic Trance related to DC brain fields with interesting results. This is part of the whole research on the relationship between these DC brain fields and states and levels of consciousness.

"We found that we could reliably determine whether a subject was truly hypnotized or was simply trying to please...In true hypnosis, the DC potential from the front to the back of the head (which is actually a measure of the brain's midline DC current) undergoes a drop in strength similar to the drop that occurs during very deep sleep. If the subject was only trying to please us, he or she was mentally active, and the DC potential went *up* in strength. We therefore concluded that hypnosis is

real, that it has a measurable electrical correlate, and that it represents some change in the subject's level of consciousness." (Becker, 1990a, p. 90) (see Figure 14.6)

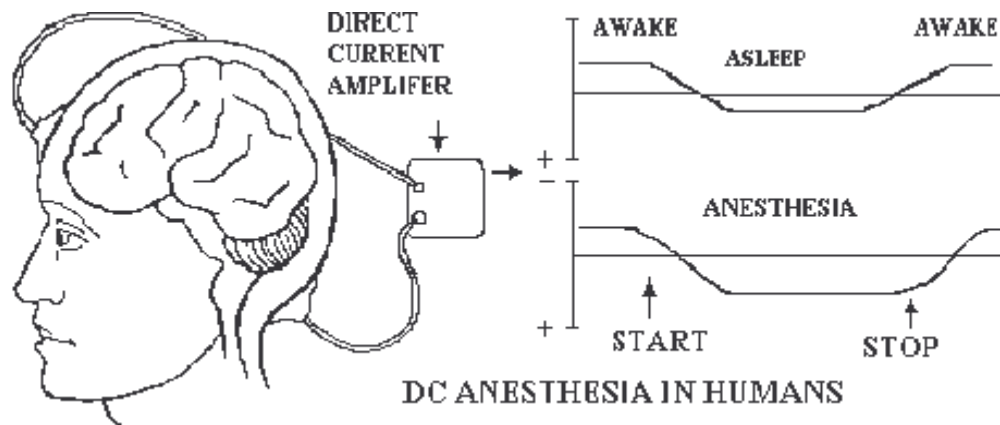


Figure 14.6. from Becker and Selden, 1985, p. 116. DC Anesthesia In Humans

"We found the same DC system pattern in the human being as in the salamander...We found the same relationship between the level of consciousness and the strength of these DC currents. Sleep produced a modest drop, and deep general anesthesia resulted in a drop in the potentials to zero in the same sequence, starting with the brain." (Becker, 1990a, pp. 87-88) It is interesting that the techniques of Electro Sleep and Electro Anesthesia are not at all used in North America (unlike the more "backward" science of the old U.S.S.R. where this approach has been researched and applied). North American medicine prefers the role of drug pushers with all their potentially harmful "side effects" for sleep and anesthesia.

"One of the most interesting aspects of hypnosis is its ability to produce anesthesia...[G]eneral anesthesia in human patients is produced by a fall in the normal DC electrical current across the brain, which then seems to produce similar declines in the DC potentials in the remainder of the body. We had also shown that local anesthesia, produced by blocking the nerve to a single part of the body, results in a drop of the DC current to zero in that area alone. We concluded that the perception of pain is directly controlled by the status of the DC currents, either in the entire body or in any local area..."

"[I]f the local anesthesia produced by hypnosis is real, it should be accompanied by a similar drop in the DC current in the anesthetized area. [We found that t]he decline in the DC potentials along the [hypnotically] anesthetized...arm was exactly the same as that seen during standard chemical nerve block."

"Under hypnosis, humans may be given verbal commands to the conscious digital-system portions of the brain, which can then effectively control the operations of the DC analog system. Since the primitive analog system controls growth and healing, it is possible that under certain circumstances, conscious thought can cause healing." (Becker, 1990a pp. 90-91)

"These discoveries [of the intricate and multilayered self-regulating feedback arrangement of the perineural system] give us a testable physical basis for the placebo effect and the importance of the

doctor-patient bond. They also may give us the key to understanding the 'miracle' cures of shamans, faith healers, and saints, as well as the spontaneous healing reported by means of visions, prayer, yoga, or battlefield terror...A combination of biofeedback, recording electrodes, and the SQUID magnetometer would seem to be the ideal setup for the next level of inquiry into the mind's healing powers."

"Moreover, since the analog system, like the impulse network, appears to work on both conscious and subconscious levels simultaneously, it's a likely missing link in several other poorly understood integrative functions that also cross from one realm to the other. It may lead us at last to fathom... memory and emotion. It may even help us understand what happens when a new synthesis of creative thought, a.k.a. inspiration, bursts forth like a mushroom from strands of mycelia that have been quietly gathering their subterranean forces. Then science for the first time will begin to comprehend the artistic essence that makes its rational side productive." (Becker and Selden, 1985, p. 242)

14.4. THE NEGATIVE FEEDBACK CONTROL PROCESS

"This [mind/brain interface] part of the analog system's job is much less well understood, however, than its integrative function throughout the rest of the body. Perineural cells accompany every part of the nervous system. The perineural structures are thus just as well distributed to integrate bodily processes as the nerves themselves. They reach into each area of the body to create a normal electrical environment around each cell, or a stimulatory one when healing growth is needed. Likewise they enable an organism to sense the type and extent of damage anywhere in the body by transmitting the current of injury, with its by-product of pain, to the CNS..."

"Thus our bodies have an intricate and multilayered self-regulating feedback arrangement. We know, on the psychological level, that a person's emotions affect the efficiency of healing and the level of pain, and there's every reason to believe that emotions, on the physiological level, have their effect by modulating the current that directly controls pain and healing." (Becker and Selden, 1985, pp. 241-242)

14.5. AN ANNEX ON MODERN THINKING AND RESEARCH ON GLIA CELLS

14.5.1. INTRODUCTORY COMMENTS

The following recent (2005) article comments on the neglected functions of glial cells. It's interesting that mainstream bio-science typically underestimates the sophistication of organisms (see the work of M-W. Ho, C.W. Smith, R.O. Becker, J.L. Oschman, K. Korotkov and R. Gerber for examples of bio-scientists who are researching this incredible sophistication.) The work of R.O. Becker described in sections 14.1-14.4. above has been, and still is, unacknowledged. The article reprinted below makes absolutely no mention or acknowledgement of Becker's pioneering work begun in the 1950s!! The fact that, after a gap of over 30 years, mainstream bio-science is "discovering" these various functions of the glial cells illustrates how the politics of science (scientism and the plague of the CSICOPian mentality) inhibits the progress of science.

14.5.2. “THE FORGOTTEN BRAIN EMERGES”

C. Krebs, K. Hüttmann and C. Steinhauser

Krebs and Hüttmann are researchers in the experimental neurobiology department at the University of Bonn's Clinic for Neurosurgery. Steinhauser is professor of neurobiology at the university.”

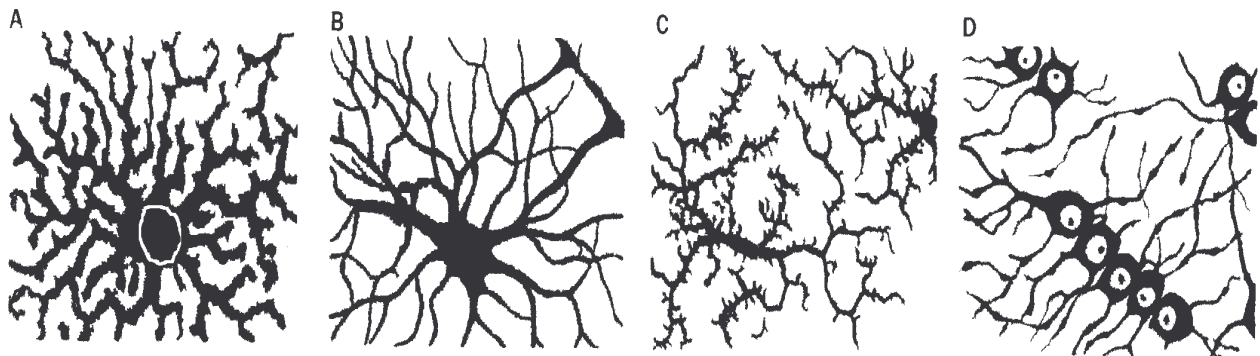
Scientific American Mind, 2005, January, v. 14, #5, 40-43

“The brain consists mainly of neurons, right: Wrong. there are nine times as many glial cells in our gray matter as there are neurons. For 50 years, neuroscientists have maintained that glia merely provide support services to neurons: warding off pathogens, maintaining a healthy ion balance around the neurons and insulating them from electrical interference.”

“But recent work indicates that glia are intimately involved in all aspects of our brain's information processing. Not only do glia talk with neurons, they communicate among themselves, aiding and abetting how our brains react, learn and remember. Understanding more about how glia function may greatly alter our model of how the brain and mind work.”

14.5.2.1. Always Talking

“Glial cells are of three different types. [see figure 14.7. below] Microglia [Figure 14.7. C] in the brain act like immune system cells elsewhere in the body by protecting neurons from intruders. Oligodendrocytes [Figure 14.7. D] form insulating myelin sheaths around the outstretched axons that carry a neuron's signals to neighbouring neurons. Astrocytes [Figure 14.7. A and B] surround neurons, especially at the synaptic gap where signalling molecules cross the tiny gap between the end of one neuron's axon and the next neuron's dendrite. The latest research demonstrates that astrocytes -- the most numerous of all glia -- perform many different functions.”



The basic classification of glial cells in the brain—protoplasmic astrocytes (a), fibrous astrocytes (b), microglial cells (c) and oligodendrocytes (d)—traces back

to Spanish anatomist Pio del Río hortega. Hortega made these drawings in 1920 with the help of a microscope's camera lucida.

Figure 14.7. Basic classification of glial cells [from Scientific American Mind, 2005, January, v. 14, #5, p. 43]

“Among other supportive jobs, astrocytes supply neurons with nutrients from blood vessels, they absorb neurotransmitters when needed to help shut' down the neurons that are sending them, and they ensure that ion concentrations remain constant in intracellular spaces in the brain. But it has become increasingly clear that astrocytes also listen in on the signals passing from neuron to neuron and communicate with those neurons. Astrocytes talk with one another, too, along networks that parallel neural networks, using the same neurotransmitters that neurons use. Clearly, glia affect how neurons communicate-in other words, how we think and how our brains perform.”

“And yet neurons and glia differ markedly in how they conduct information. Neurons send rapid electrical impulses, known as action potentials. Astrocytes use chemical messages, which are controlled by rising and falling concentrations of calcium ions. An increased concentration spreads throughout the cell like a human wave propagating through the stands at a baseball game-and often spills over to neighbouring astrocytes through channels between the cells. Although they are dissimilar, the two types of cells sometimes use the same types of messenger molecules. Recently our neurobiology group in Bonn, working with Andrea Volterra of the University of Lausanne in Switzerland, demonstrated that astrocytes, when activated by the chemical messenger glutamate, release the same neurotransmitters that neurons release, using a similar molecular mechanism.”

“By affecting how neurotransmitters carry signals across synaptic gaps among neurons and by releasing the same neurotransmitters to neurons and to one another, glia directly influence information transfer in the brain. Astrocytes affect the signalling between adjacent neurons along a chain and, using their own network, also affect how neurons are triggered in distant parts of the brain. Researchers now think astrocytes coordinate the activity of nerve cells in various brain regions at the same time, through the propagation of calcium ion waves.”

14.5.2..2.Clues from Epilepsy

“One way to examine how glia communicate is to analyze what happens during epileptic seizures. This condition manifests itself as occasional sudden disturbances of consciousness or uncontrollable convulsions or spasms. In these episodes, neurons in one region of the brain fire suddenly and in complete synchrony. In some cases, only a few cells misfire. In others, the discharge spreads to large areas of the cerebral cortex. The firing can be very intense. These electrical storms temporarily bring the affected brain region to a standstill. But how?”

“To look for an answer, we studied tissue from the hippocampus of epileptic patients. The hippocampus is heavily involved in the onset and spread of seizures, and in patients who have severe epilepsy it can be surgically removed as a treatment of last resort. By experimenting on thin sections of removed hippocampus, we were able to track ion streams flowing through the cell membranes of individual astrocytes and thus measure the activity of individual ion channels and neurotransmitter receptors.”

In a non-epileptic brain there are normally two different types of astrocytes: gluT cells and gluR cells. But we have found that in one widespread form of temporal lobe epilepsy, called sclerosis of the hippocampus, gluT cells are completely lacking in the hippocampus. In healthy brains these astrocytes absorb glutamate released by neurons and thereby inhibit prolonged stimulation

of the neurons. The gluT cells also have potassium channels in their cell membrane that can remove potassium ions from the intracellular space, again shutting down neurons so they do not run wild.”

“It turns out that gluT astrocytes are connected together in long networks comprising hundreds of gap junctions—a particular type of regulated channel between cells. Functioning collectively as a large network, gluT cells can remove molecules and ions from many neurons simultaneously by shunting them to blood vessels where they are carried away, shutting down overactive transmission in a brain region. The loss of gluT cells in the hippocampus, however, prevents the rapid removal of messenger molecules and ions. Instead the substances collect around neurons, over stimulating them for too long and raising the probability of excessive firing.”

“A further consequence of gluT cell loss is that the neurons become energy-depleted. In healthy tissue, astrocytes absorb glucose from the blood and transform it into lactic acid, which the neurons use to generate energy. A lack of gluT astrocytes in patients with sclerosis of the hippocampus appears to considerably impair the supply of nutrients to neurons in that region. So it may be that vast complexes of neurons over stimulate at the onset of a seizure, then stop en masse, exhausted.”

“For their part, gluR astrocytes possess specialized receptors for a variety of messenger substances, including glutamate. The precise function of these cells is still largely unclear, however. Although they, like gluT astrocytes, have potassium channels in their membranes, they are not connected in a network and so cannot remove those ions. Patients with sclerosis of the hippocampus have gluR cells, but the density of the potassium channels in their cell membranes is significantly lower than in a healthy brain. In addition, the glutamate receptors in these cells operate more slowly. That fact may allow neurons to fire more easily, further increasing the risk of an epileptic seizure.”

14.5.2.3. A New Pathology

“Although we must pin down more details, our work on seizures thus far indicates a clear correlation between unusual astrocytes density and electrical storms in the brain. What we still do not know is whether the deficiency or changes in glial cells actually cause this form of epilepsy or are a consequence of it. Either way, we can conclude that glia and neurons cooperate closely.”

“Future research on pathological problems in the brain will have to consider not just neuronal activity, as has been the practice to date, but glial activity, too. To actually pinpoint the mechanisms underlying certain brain diseases and conditions, researchers must develop a new understanding of how glia—particularly astrocytes—contribute to information processing. Only then can effective treatments be developed.”

14.5.2.4. Further Reading

“Fields, R.D. (2004) “The Other Half of the Brain.” Scientific American, Vol. 290, No.4, pages 54-61; April

Hatton, G. I. and V. Parpura (eds.) (2004) Glial - Neuronal Signaling. Kluwer Academic Publishers

Kettenmann, H. (2004) Neuroglia. Oxford University Press

See the Journal *Neuron Glia Biology*: http://journals.cambridge.org/jid_NGB “

15. THE AUTONOMIC NERVOUS SYSTEM (ANS): NEW APPROACHES TO ITS BALANCE AND FUNCTIONING

15.1. HEART RATE VARIABILITY (HRV), ANXIETY AND THE AUTONOMIC NERVOUS SYSTEM (ANS)

15.1.1. TRADITIONAL PSYCHOLOGY/PSYCHIATRY RESEARCH

HRV research from the traditional psychology/psychiatry has demonstrated the importance of balance between the sympathetic and parasympathetic branches (and the associated "Autonomic Nervous System responsivity, sensitivity, and flexibility"). In general, the sympathetic branch of the autonomic nervous system speeds heart rate, constricts blood vessels, and stimulates the release of stress hormones in preparation for action (the Fight-Flight, "inner warrior" reaction) while the parasympathetic branch slows heart rate and relaxes the body's inner systems (the "Freeze" response from an overactive primitive vagus) and generally maintains optimum daily functioning ("inner peace keeper" reaction). Research done in 1994 states that a pattern of decrease in HRV and cardiac vagal activity (the vagus nerve controls the parasympathetic branch) "...is common to a variety of disorders... as well as the condition of worry... and may represent the chronic state of autonomic cardiovascular control found in GAD [Generalized Anxiety Disorder]." (Thayer, Friedman and Borkovec, 1996, p.262).

Traditionally, up to about 1994, emphasis was focused on the overactive sympathetic branch. While this is a problem, the balance between the two branches appears more critical. The research reported in the article concluded "Parasympathetic control is more effective in modulating beat-to-beat changes in... [Heart Rate] and would allow for enhanced responsivity and sensitivity [of the Autonomic Nervous System]... The loss of complexity and variability in physiological systems in general, and in the cardiovascular system in particular, has...been linked with a number of diseases and dysfunctions. Beside physiological disorders such as fetal distress syndrome, sudden cardiac death, ventricular fibrillation, hypertension, diabetes mellitus, and coronary atherosclerosis, several behavioral and psychological states such as acute and chronic smoking, acute and chronic alcohol ingestion, sedentary lifestyle, depression, panic disorder, and aging have all been associated with a loss of heart rate variability and complexity... the 'decomplexification' of physiologic dynamics is a generic functional response associated with various pathological states... [T]he dysfunction involves reduced autonomic flexibility. As such, the similarities seen among various disorders... represent the underlying functional pathology [i.e., lowered responsivity, flexibility and sensitivity of the ANS] that may be common to many disorders." (Thayer, Friedman, and Borkovec, 1996, p.262) [emphasis added] In a similar vein, Hoehn-Saric and McLeod conclude "[D]iminished autonomic flexibility was found in all examined anxiety disorders. It will be interesting to see whether this decreased autonomic flexibility is specific for anxiety disorders or if it can occur in other psychiatric disorders as well." (Hoehn-Saric and McLeod, 1993, p. 248) [emphasis added]

Stein and Kleiger (1999, p. 257) conclude "Use of HRV to explore underlying physiology... is best accomplished with spectral analysis of data from short-term monitoring periods under controlled conditions..." which makes it very appropriate for the analysis of psychotherapeutic outcomes.

(see figures 15.1 and 15.2 for a schematic of the Sympathetic and Parasympathetic branches of the Autonomic Nervous System)

THE AUTONOMIC NERVOUS SYSTEM (SYMPATHETIC)

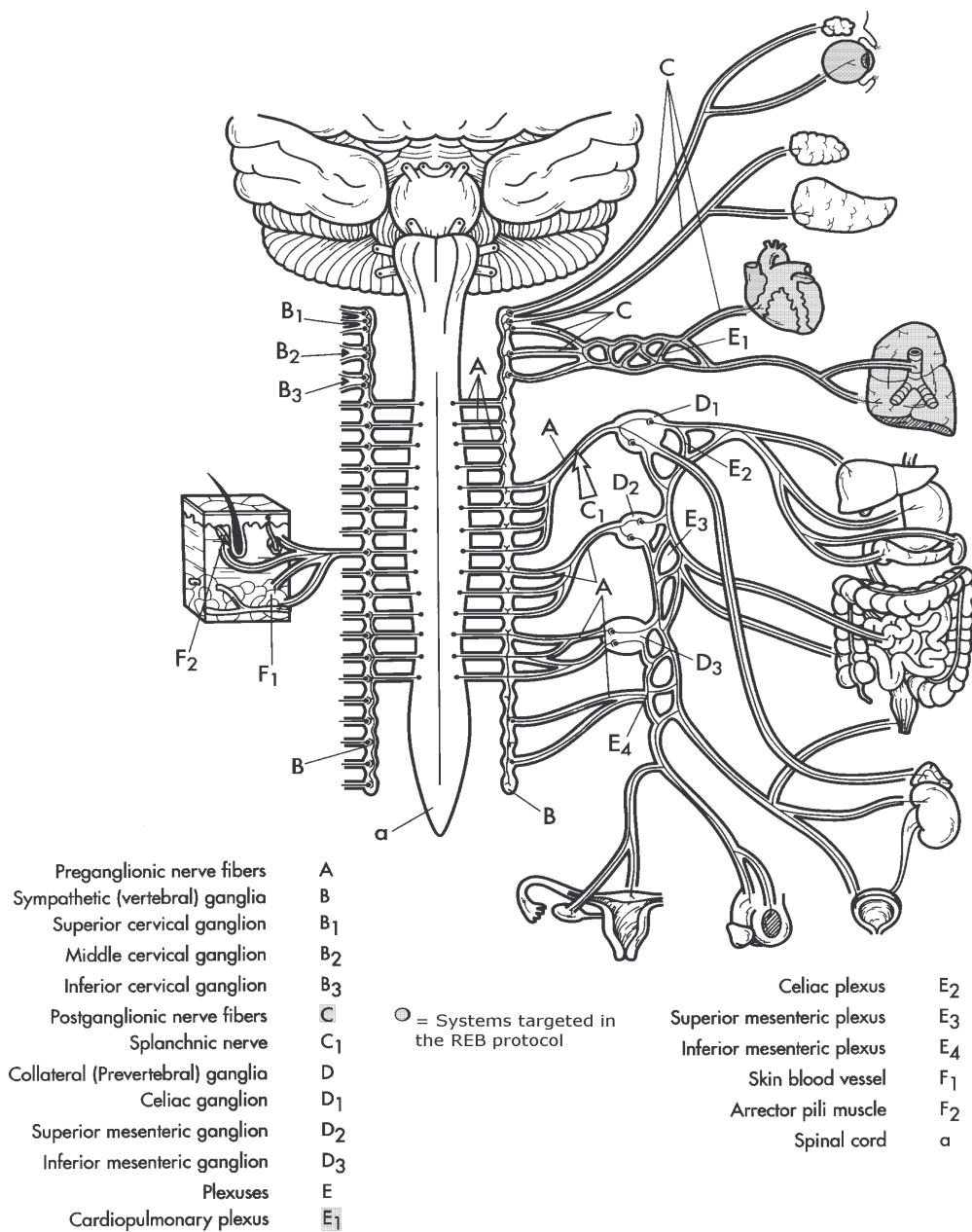


Figure 15.1

THE AUTONOMIC NERVOUS SYSTEM (PARASYMPATHETIC)

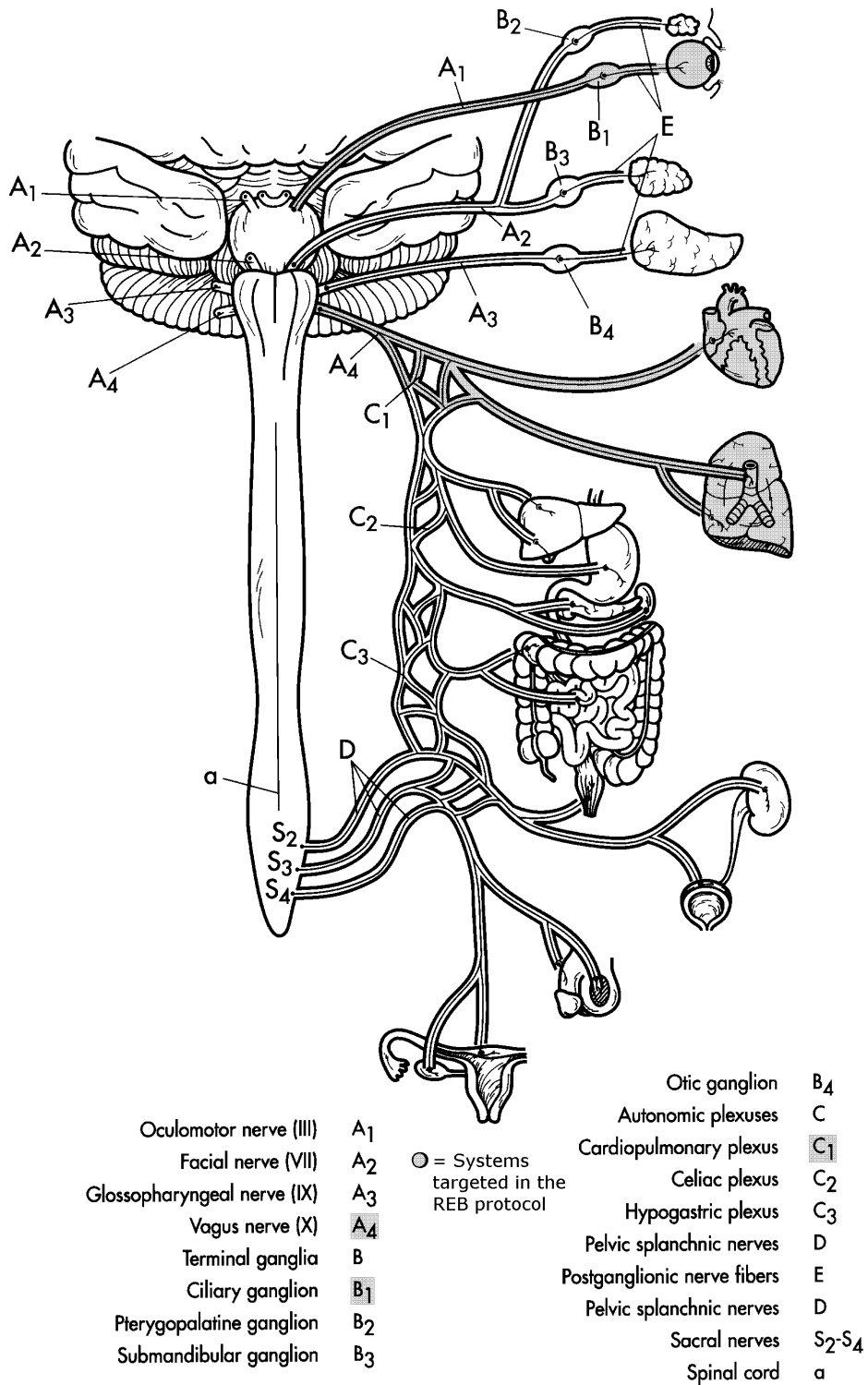


Figure 15.2

15.1.2. HEART MATH AND FREEZE FRAME

Scaer and Schneider (2002) (see section 19.1.4), criticize the HeartMath research claim that the heart is the major source for "heartfelt" feelings and point out that a non-functioning Right Orbital Frontal Cortex prevents people from experiencing positive or negative emotions. They question whether the heart can be considered the *source* of the positive feelings such as love, care and compassion. The Radiant Energies Balance (REB)sm does not consider this an either/or question. The protocol addresses the issue of the hemispheres in modules 2 and 6 as well as continually providing the whole system, especially the heart, with positive core heart feelings whenever there is a change in the felt sense of the issue (see section 4.2 Modules 5 and 7). As stated in section 19.1.4 the question becomes how best to re-educate the right orbitofrontal cortex and in general the right brain's emotional processing system including the "smart vagus." The REBsm protocol assumes the most efficient approach is via the heart and the core heart feelings (see section 4.2 Module 7).

I've been looking at the HeartMath research (on HRV -- Heart Rate Variability) and the methods (e.g. "FreezeFrame" and "Heart Lock In") they use to bring coherence to the heart and thus the autonomic (automatic) nervous system. HRV -- Heart Rate Variability -- seems to be a direct indicator of the responsiveness, sensitivity, balance and flexibility of autonomic nervous system functioning. The Radiant Energies Balance (REB)sm protocol seems more direct, easier and faster (i.e. more elegant) than the standard HeartMath methods. HRV may be an ideal dependent variable in evaluating the effectiveness of any form of therapy. Kautzner and Hnatkova state: "It is indisputable that for stationary short-term recordings the spectral analysis of HRV provides specific information about sympataho-vagal [sympathetic-parasympathetic] balance." (Kautzner and Hnatkova, 1995, p. 125) Akselrod maintains that this critical sympatho-vagal [sympathetic-parasympathetic] balance (which measures the cooperation and coordination between the sympathetic and parasympathetic branches) can be assessed using the ratio of power in the Low Frequency (below .15 Hz) to High Frequency (between .2-.4 Hz) bands. "... [T]he functional relationship is a complex combination of sympathetic and parasympathetic tone ... the LF [Low Frequency] band includes both contributions [from both branches], whereas the HF [High Frequency] reflects only vagal tone [parasympathetic] ..." (Akselrod 1995, p. 156) Stein and Kleiger state that "...there is a consensus that, under normal circumstances, HF power reflects vagal [parasympathetic] modulation of the heart rate. In addition, it has been claimed that LF power -- especially normalized LF power, which is LF/LF+HF -- reflects primarily sympathetic modulation of heart rate and that the LF/HF ratio reflects 'sympatho-vagal balance'." They recommend using time domain indices of HRV (for example SDNN = Standard Deviation of Normal to Normal intervals which corresponds to Total Power measure) since they are more easily obtained and have close correlates with those in the frequency domain analyses (Stein and Kleiger, 1999, pp. 251-2)

Tiller (1997) describes the effects of practicing the HeartMath technique called Freeze Frame which is part of the Radiant Energies Balance (REB)sm protocol. "This [FreezeFrame] consists of consciously disengaging the mental and emotional reactions to either external or internal events and then shifting the center of attention from the brain and the emotions to the physical area of the heart while intentionally focusing on someone or something to love and/or sincerely appreciate. This allows the individual to access a wider and more objective perception in the moment... [Other higher emotions are] love, care, appreciation, forgiveness, humor, compassion, patience, tolerance and kindness. Love... is defined as benevolent heart focus towards the well-being of others and it is found that the heart-focused feeling for any of these mentioned qualities produces profound

electrophysiological changes in heart rate variability (HRV) as contrasted with the mental focus on the concept of these heart qualities, which does not produce such HRV changes..." (Tiller 1997, p. 213)

"[T]he source of the heartbeat is within the heart itself...although its beat rhythm can be modulated by other segments of the body. Both sympathetic and parasympathetic nerve links connect the brain to the heart allowing one-way signal communication. Reverse direction signals also flow along nerves of the baroreceptor system to the brain making it a two-way communication system. The sympathetic nerve link of the ANS (autonomic nervous system) causes the heart rate to increase while the parasympathetic causes the heart rate to decrease... It is the interaction between these two signal links that produces what is technically called heart rate variability (HRV), the periodic time variation in number of heart beats per minute found in an individual's electrocardiogram (ECG)." (Tiller 1997, pp. 213-214) [emphasis added]

"[T]he reverse direction signals [to the brain]...profoundly influence brain function (the cardiovascular system is the only known nerve input to the brain that will inhibit the activity of the brain's cortex)...Thus, although the heart has its own basic rhythm, this rhythm appears to be modified by how we mentally or emotionally perceive events in the moment..." (Tiller 1997, p. 214) [emphasis added]

"[R]epeated practice of the HeartMath [and other] inner self-management techniques produces a balanced mental and emotional nature that, in turn, manifests a set of uniquely defined physiological states as seen via analysis of HRV and ECG data... [In this analysis] the sympathetic [LF or low frequency between 0.10Hz and 0.15 Hz] and parasympathetic [HF or high frequency between 0.15Hz and 0.40Hz] influence the sinus node... of the heart and influence its HRV as seen in the HRV power spectrum [chart]... [T]he variability in heart rate can be determined and plotted as the real time HRV signals... [which] can be analyzed into its primary wave components to give the amplitude of each wave component as a function of wave frequency... Since the energy or power in a wave is proportional to the amplitude squared, the power spectrum of a real-time signal [can be plotted] for each wave component...In [this] power spectrum,... the very low frequency signals [below 0.1 Hz], largely associated with thermoregulation of the body, are often ignored. Although it is not a perfectly clean measure of ANS balance, many investigators use the ratio of total HF power (0.15Hz to 0.40Hz) to total LF power (0.05Hz to 0.15Hz) as an approximate measure of ANS balance." (Tiller 1997, p. 214) [emphasis added]

"Normal individuals (without much inner self-management) generally exhibit imbalance in their sympathetic versus their parasympathetic innervation and this is a good datum from which to measure progress in the development of inner self-management via steady use of HeartMath [and other Emotional Freedom] techniques... [People practicing inner self-management procedures exhibit 'achievement plateaus'] With training, individuals first learn to balance the two branches of the ANS. Next, the entrainment state is achieved at the natural baroreceptor frequency (about 0.1Hz). This appears to be followed by entrainment state shifts to alternate specific frequencies depending on the specific heart intentionally focus used. Then, one reaches the internal coherence state of heart function in which the real-time HRV signal is held at an approximately zero amplitude level which means that the ECG signal is exhibiting almost perfectly periodic behavior (in normal individuals, small to near zero HRV is thought to be a potentially dangerous condition as it connotes a loss of flexibility in the system. However, for those trained subjects [in skills using the

various Emotional Freedom Processes (EFPs) methods], it is an indication of exceptional self-management because their resting HRV is quite large." (Tiller 1997, p. 217) [emphasis added] This would be a fascinating research area testing various enlightened beings and experienced meditators, etc. [emphasis added]

In sum, "... a set of relatively simple techniques [FreezeFrame and other Emotional Freedom Processes] exist whereby otherwise normal individuals can, in a reasonably short period, gain a sufficiently high level of inner self-management at mental and emotional levels to automatically manifest conscious ordering of their ECG and HRV." (Tiller 1997, p. 218) [emphasis added]

Our hypothesis is that the Radiant Energies Balance (REB)sm protocol seems more direct, easier and faster (i.e. more elegant) than the standard HeartMath methods. HRV may be an ideal dependent variable in evaluating the effectiveness of any form of therapy.

15.2. THE POLY VAGAL THEORY OF THE PARASYMPATHETIC NERVOUS SYSTEM

This summary is taken from Ogden and Minton (2001):

"Hyperarousal involves 'excessive sympathetic branch activity [which] can lead to increased energy-consuming processes, manifested as increases in heart rate and respiration and as a pounding sensation in the head' (Siegel, 1999, p. 254). Over the long term, such hyperarousal may disrupt cognitive and affective processing as the individual becomes overwhelmed and disorganized by the accelerated pace and amplitude of thoughts and emotions, which may be accompanied by intrusive memories. As Van der Kolk, Van der Hart, et al. (1996) state, 'This hyperarousal creates a vicious cycle: state-dependent memory retrieval causes increased access to traumatic memories and involuntary intrusions of the trauma, which lead in turn to even more arousal' (Van der Kolk, Van der Hart, et al., 1996, p. 305). Such state-dependent memories may increase clients' tendency to 'interpret current stimuli as reminders of the trauma' (p. 305), perpetuating the pattern of hyperarousal. Van der Kolk points out that high arousal is easily triggered in traumatized persons, causing them to '...be unable to trust their bodily sensations to warn them against impending threat, and cease to alert them to take appropriate action' (p. 421), thereby disrupting effective defensive responses."

"At the opposite end of the Modulation Model [of Ogden and Minton], '... excessive parasympathetic branch activity leads to increased energy conserving processes, manifested as decreases in heart rate and respiration and as a sense of 'numbness' and 'shutting down' within the mind' (Siegel, 1999, p.254). Such hypoarousal can manifest as numbing, a dulling of inner body sensation, slowing of muscular/skeletal response and diminished muscular tone, especially in the face (Porges, 1995). Here cognitive and emotional processing are also disrupted, not by hyperarousal as above, but by hypoarousal." [The ultimate extreme of this is "voodoo death."]

"Both hyperarousal and hypoarousal often lead to dissociation. In hyperarousal, dissociation may occur because the intensity and accelerated pace of sensations and emotions overwhelm cognitive processing so that the person cannot stay present with current experience. In hypoarousal, dissociation may manifest as reduced capacity to sense or feel even significant events, an inability to accurately evaluate dangerous situations or think clearly, and a lack of motivation. The body, or a part of the body, may become numb, and the victim may experience a sense of 'leaving' the body.

Additional long term and debilitating symptoms might include 'emotional constriction, social isolation, retreat from family obligations, anhedonia and a sense of estrangement' (Van der Kolk, 1987, p. 3) along with '... depression... and a lack of motivation, as psychosomatic reactions, or as dissociative states' (Van der Kolk, McFarlane, and Van der Hart, 1996, p. 422). As we can see, these symptoms are reminiscent of passive defenses, in which a person does not actively defend against danger."

"Stephen Porges's (1995, 1997, 2001) work, which elucidates a hierarchical relationship among the levels of the autonomic nervous system, has important implications for the regulation of both arousal and defensive responses. He concludes that hypoarousal (described above) is due to a specific branch of the parasympathetic nervous system, the 'dorsal vagal complex,' which causes the organism to conserve energy by drastically slowing heart and breath rates. The other branch of the parasympathetic nervous systems, the 'ventral vagal complex, the 'Social Engagement System,' is the 'smart' vagal because it regulates both the dorsal vagal and sympathetic systems. This 'smart' system is much more flexible than the other two more primitive levels of the autonomic nervous system, which if unregulated, tend to the extremes of hyperarousal or hypoarousal. The Social Engagement System gives humans immense flexibility of response to the environment (Porges, 1995, 1997). For example, during social engagement, interaction and conversation can rapidly shift from strong affect and animation one moment, to calm listening and reflection the next. This 'smart' branch of the parasympathetic nervous system regulates the sympathetic and 'freeze' (dorsal vagal parasympathetic) responses to trauma and allows human beings to fine-tune their arousal to the needs of the situation. This sophisticated 'braking' mechanism of the Social Engagement System facilitates the regulation of overall arousal and is akin to Schore's 'interactive psychobiological regulation.'" (Porges, 2001) [emphasis added]

"In effective modulation, the Social Engagement System regulates the more extreme behavior of the autonomic nervous system. Under the stress of trauma, an individual may at first attempt to use the Social Engagement System to modulate, but, if ineffective, social engagement/interactive regulation will tend to shut down. As this occurs, the person has a compromised capacity to use relationships for regulation and instead reverts to the more primitive sensorimotor and emotional systems. The healthy functioning of cognitive direction is diminished... in Sensorimotor Psychotherapy [and REBsm] the Social Engagement System is activated as the therapist/client interaction effectively serves to regulate and modulate arousal. After the therapist fulfills this role (in other words, becomes an 'auxiliary cortex' for the client), the client can learn the auto-regulation capacities of observing and tracking sensorimotor reactions. That is, the therapist's ability to interactively regulate the client's dysregulated arousal creates an environment in which the client can begin to access his own ability to regulate arousal (Schore, 2002) independent of relational interaction. Through this process, the client is helped to move from frozen states and/or hyperarousal to full participation with the Social Engagement System." [emphasis added]

One outcome of the comprehensive REBsm protocol will be the restoration of Porges' Social Engagement System's control over autonomic functioning. This will be demonstrated with the person's ability to rationally respond to triggers that previously would throw them into a reactive automatic response (the phenomena of "emotional hijacking"). They will be able to "access their own ability to regulate arousal"). This is also the intended outcome of HeartMath's protocols (Childre's work) which we incorporated into the comprehensive REBsm protocol as well. (Module 7)

15.3. THE HEART'S INTELLIGENCE, BRAIN AND ?SPIRIT

THE HEART IS MUCH MORE THAN A PUMP. In module 7 (see section 4.2) of the balance we recommend you focus on your heart and give it lots of core heart feelings and replace the negative emotions (which are now gone) with positive ones, especially for the heart, as is done in the HeartMath procedures (Childre's work). The impact of positive emotions on human biological functioning in general, and the immune system in particular, is receiving more attention in the traditional research/practice community. As examples of this aspect: The HeartMath research on giving positive heart felt feelings is very clear. Donna Eden emphasizes positive emotions/thoughts beneficial impact on the energy system's Radiant Circuits. The results, discussed in a very technical article, describe the impact of laughter on the immune system (Beck, Felten, Tan, Bittman and Westengard, 2001). For an overview of the field, see Dossey, (1996); the classic Norman Cousins' work (1976) (1981) and (1989); Raymond Moody's book (1978); the Patch Adams approach; and the optimism literature: Taylor (1989), Kohn (1990) and Seligman's work (1990) and (1995).

This brings up another fascinating aspect of HeartMath research: the exploration and elucidation of "Heart Intelligence" and the "Heart Brain" (Lacey and Lacey, 1978 and Armour, 1991, in Zuker and Gilmore, eds.) "The heart's brain is an intricate network of several types of neurons, neurotransmitters, proteins and support cells like those found in the brain proper. Its elaborate circuitry enables it to act independently of the cranial brain -- to learn, remember, and even feel and sense...The heart's nervous system contains around 40,000 neurons, called sensory neurites, which detect circulating hormones and neurochemicals and sense heart rate and pressure information. Hormonal, chemical, rate and pressure information is translated into neurological impulses by the heart's nervous system and sent from the heart to the brain through several afferent (...to the brain) pathways...These afferent nerve pathways enter the brain in an area called the medulla, located in the brain stem. The signals have a regulatory role over many of the autonomic nervous system signals that flow out of the brain to the heart, blood vessels and other glands and organs. However, they also cascade up into the higher centers of the brain, where they may influence perception, decision making and other cognitive processes. Dr. Armour describes the brain and nervous system as a distributed parallel processing system consisting of separate but interacting groups of neuronal processing centers distributed through the body. The heart has its own intrinsic nervous system that operates and processes information independently of the brain or nervous system...The heart was reclassified as an endocrine or hormonal gland, when in 1983 a hormone produced and released by the heart...was isolated. This hormone exerts its effects widely: on the blood vessels themselves, on the kidneys and the adrenal glands and on a large number of regulatory regions in the brain...[T]he heart contains a [adrenergic] cell type ...[which] synthesize and release catecholamines (norepinephrine and dopamine), neurotransmitters once thought to be produced only by neurons in the brain and ganglia outside the heart...[T]he heart also secretes oxytocin...the 'love' or 'bonding' hormone...[T]his hormone is also involved in cognition, tolerance, adaptation, complex sexual and maternal behaviors as well as in the learning of social cues and the establishment of enduring pair bonds...[C]oncentrations of oxytocin in the heart as high as those found in the brain." (McCraty, Atkinson and Tomasino, 2001, pp. 4-6) [underlining added]

A dramatic example of the cellular memory, intelligence, wisdom and even spirit of the heart is provided by the cases of transplant patients who receive heart and other organs and who take on

some personality aspects (food and activity preferences, language patterns, temperament, etc.) of the donor. (Sylvia. with Novak, 1997. Research into the unusual experiences of organ transplant recipients is being done by Claire Sylvia and Robert Bosnak at the Center for Psychology and Social Change, Cambridge Hospital, Box 398080, Cambridge, MA 02139, phone: 617-354-2499). See also Paddison, 1992, Pearsall, (1998) and Schwartz and Russek (1999).

15.4. RADIANT ENERGIES BALANCE (REB)sm PROTOCOL AS COUNTER CONDITIONING

The comprehensive Radiant Energies Balance (REB)sm protocol (which is an autonomic nervous system balance protocol used to defuse various anxiety/fear issues) also fits in with a "counter conditioning," "reciprocal inhibition," and "systematic desensitization" approaches used in traditional psychotherapy. (Lazarus, 1971; Meichenbaum, 1977; Rimm and Masters, 1974; Salter, 1949; Wolpe, 1958, 1969; Wolpe and Wolpe, 1988; and Wolpe and Lazarus, 1966) These approaches assume that the anxiety/fear reaction becomes attached to normally neutral stimuli by a learned association causing the person to react with an inappropriate emotional response. The goal of therapy is to substitute a non-fear response to these stimuli by a "counter conditioning" process. In the Radiant Energies Balance (REB)sm or autonomic nervous system balance protocol, the person surveys the various aspects (stimuli or triggers) which cause them distress while maintaining the balancing posture (which creates homeostasis in the autonomic nervous system) thus substituting a calm response for the distress response. As the person surveys the troubling issues, each of the stimuli or triggers in turn become newly associated with calming response. (Kolb, 1984 and McFall and Murburg, 1994 in Murburg, pp. 161-174]

16. EFFICIENT TREATMENT FOR THE RESIDUALS OF TRAUMA (PTSD)

16.1. PETER LEVINE'S APPROACH

Peter Levine (1997) has developed the system he calls Somatic Experiencing® - Gradated Renegotiation of the effects of trauma, mainly the Freezing or Immobility response that is associated with the feeling of helplessness. According to Porges' "Poly Vagal" theory, the part of the autonomic (automatic) nervous system (the Dorsal Vagal Complex, see section 15.2, is intimately involved in the area of PTSD (Post Traumatic Stress Disorder) and involved in the immobility reaction. My (PWW) assumption is that using the REBsm balancing procedure proposed here would greatly facilitate and speed this step-wise process and strengthen the "Ventral Vagal Complex" or the "Social Engagement System." "Somatic Experiencing is a gentle step-by-step approach to the renegotiation of trauma. The felt sense is the vehicle used to contact and gradually mobilize the powerful forces bound in traumatic symptoms. It is akin to slowly peeling the layers of skin off an onion, carefully revealing the traumatized inner core." (Levine, p 120) "There are four components of trauma that will always be present to some degree in any traumatized person: 1. hyperarousal; 2. constriction; 3. dissociation (including denial); 4 freezing (immobility), associated with the feeling of helplessness...When we learn to recognize these four components of the traumatic reaction, we are well on our way to recognizing trauma. All other symptoms develop from these four if the defensive energy mobilized to respond to a traumatic event is not discharged or integrated..." (p. 132) [underlining added] "In Somatic Experiencing, renegotiation revolves around learning to experience the natural restorative laws of the organism." (Levine, p.205) The use of energy/information methods greatly speeds this learning in my opinion.

The Freezing or Immobility response which comes from the feeling of helplessness "...is one of the three primary responses available...when faced with an overwhelming threat. The other two, fight and flight, are much more familiar...Less is known about the immobility response...However...it is the single most important factor in uncovering the mystery of human trauma...Nature has developed the immobility for ...good reason...[I]t serves as a last-ditch survival strategy." (Levine, p. 16) This interim period of playing dead offers animals a chance to escape. "When it is out of danger, the animal will literally shake off the residual effects of the immobility response and gain full control of its body. It will then return to its normal life as if nothing had happened." (Levine, p.16) This would be an optimal response for human beings but, because of our "higher cognitive processes," it's very rare. Because the state resembles death, humans have a fear of immobility. Thus we avoid it..."but we pay dearly for it. The physiological evidence clearly shows that the ability to go into and come out of this natural response is the key to avoiding the debilitating effects of trauma...The key to healing traumatic symptoms in humans is in our physiology. When faced with what is perceived as inescapable or overwhelming threat, humans and animals both use the immobility response. The important thing to understand about this function is that it is involuntary...[T]he physiological mechanism governing this response resides in the primitive, instinctual parts of our brains and nervous systems. (Levine, p. 17)

People who suffer PTSD are involved in a vicious loop of re-enactment of the trauma in order to renegotiate it; but, without success. "The nervous system compensates for being in a state of self-perpetuating arousal by setting off a chain of adaptations that eventually bind and organize the energy into 'symptoms.' These adaptations function as a safety valve to the nervous system...The first symptoms of trauma usually appear shortly after the event...Others will develop over time...[T]rauma symptoms are energetic phenomena that serve the organism by providing an organized way to manage and bind the tremendous energy contained in both the original and the self-perpetuated response to threat." (Levine, pp. 146-147, underlining added)

"Re-enactment represents the organism's attempt to complete the natural cycle of activation and deactivation that accompanies the response to threat...In [nature], activation is often discharged by running or fighting -- or by other active behaviors that bring about a successful conclusion to the potentially life-threatening confrontations...[We humans] are vulnerable to traumatization in a way that animals are not. The key to the exit from this seemingly unsolvable predicament lies in...our ability to be *consciously* aware of our inner experience. When we are able...to *slow down* and experience all the elements of sensation and feeling that accompany our traumatic patterns, allowing them to complete themselves before we move on, we begin to access and transform the drives and motivations that otherwise compel us to re-enact traumatic events. Conscious awareness accessed through the felt sense provides us with a gentle energetic discharge...This is *renegotiation*." (p. 187 *italics in original*) "With patience and attention...the patterns that drive traumatic re-enactment can be dismantled so that we again access the infinite feeling tones and behavioral responses that we are capable of executing. Once we understand how trauma begins and develops, we must then learn to know ourselves through the felt sense. All the information that we need to begin renegotiating trauma is available to us. ...Moving slowly and allowing the experience to unfold at each step allows us to digest the unassimilated aspects of the traumatic experience at a rate that we are able to tolerate." (Levine, p. 188)

Since the autonomic nervous system is very much involved in all this, I believe, as I wrote above, that using the balancing procedure proposed here would greatly facilitate and speed the process of renegotiation. The other most common approach is EMDR (Eye Movement Desensitization and Reprocessing) (Shapiro 1995, Parnell, 1997)

16.2. THE IMPORTANCE OF BEING AWARE OF THE BODY'S PHYSIOLOGICAL RESPONSE IN TREATING PTSD

Any psychotherapy that doesn't get out of its mind will be less effective and less efficient!

16.2.1. THE IMPORTANCE OF USING NEUROSCIENCE INFORMATION IN THERAPY

In the comprehensive REBsm protocol Module 5 we emphasize the importance of noticing the emotional and body sensations that arise when you contact the issue you are dealing with. One advantage of this approach is that the person dealing with a trauma is less likely to be sucked back into the trauma (re-traumatized) since you are encouraging them to concentrate on the physiological effects and stay in present time. In addition, in Module 2 on accessing the hemispheres, we test to discover whether the felt sense of the issue is different depending on which hemisphere or eye is "viewing" it.

"...[T]he brain produces brand-new cells in maturity...[and] is changing and growing continuously throughout life, shaped as much by experience as genetic heritage...A corollary is that neglected neural patterns fade away, and unused neurons die. 'Use it or lose it,' seems to be the hard law of brain development..." (Wiley and Simon, 2002, pp. 28-29)

SOME LESSONS FROM NEUROSCIENCE FOR THERAPISTS TO CONSIDER

16.2.1.1. LESSON 1: THE BRAIN IS PROFOUNDLY INTERPERSONAL

"Siegel [author of The Developing Mind] coined the term *interpersonal neurobiology* to describe how advances in research have created a conceptual bridge among biology, attachment research, developmental psychology, brain science, and systems theory...'[E]volution has designed our brains to be shaped by our interpersonal environment.' Siegel posits a 'multiskull view' of the brain, a way of understanding that brain processes take place through people's interactions with one another...'[T]he cultural transmission of meaning ultimately comes down to neuronal process.'...Scientists have particularly focused on the development of the brain's orbitofrontal cortex, an area strategically located behind the eyes, between the 'higher,' thinking areas and the 'lower,' emotional areas. This region integrates and coordinates cognitive and emotional processes, helping us regulate emotional arousal and control our impulses...'[It] is wired to read facial expressions and is uniquely sensitive to face-to-face communication...'[Parent-child] interactions -- ordinary, routine, repeated innumerable times -- stimulate the growth of synapses in the orbitofrontal cortex that enable children to moderate their [emotions]...and to respond flexibly to other people." (Wiley and Simon, 2002, p. 30-31)

16.2.1.2. LESSON 2: EMOTIONS ORGANIZE THE BRAIN

"...[N]euroscientists have learned that, on a neurobiological level, emotions are integral to such mental processes as cognition, perception, memory, and physical action....[E]motions are regulated along the same brain circuits that govern social relationships and the processes of making meaning. Emotions are neurologically intertwined with the experience of selfhood. In evolutionary terms, emotions are crucial to survival. The need to appraise and respond to a potential threat comes up too fast to address consciously...we're always in the process of catching up with our emotions..." (Wiley and Simon, 2002, pp. 31, 33) This also reinforces and strengthens the "smart/social vagus" (Porges).

"...[E]motions are basically bodily responses triggered by brain circuitry...A stimulus-eliciting fear...bypasses the cognitive centers and goes straight to the amygdala...the brain's 'early warning module'...The amygdala sets off a full-body hormonal response that can bypass the conscious brain and is experienced physically as...fear. After the first amygdala-produced shock, the frontal cortex engages, reinforcing the original the visceral fear or [re-interpreting the situation as benign]. The fear process reverses, and we calm down. Therapy with clients [suffering from excessive or irrational fear] teaches people, in part, how to beef up the frontal cortex -- making them more thoughtful, better able to bring reason to bear on their fears, and less liable to freak out...[Pure cognitive approaches have a built-in limit since] more connections run from the amygdala to the cortex than the other way around -- which means that the amygdala has more power to control the cortex that vice versa...Worry, anxiety, and stress...probably stem from the amygdala, and are notoriously resistant to our own attempts to reason ourselves out of them. Once fearful reactions or traumatic memories are burned into the amygdala, they tend to lock the mind and body into recurring patterns of arousal, flooding with stress hormones and irrational fear. We have difficulty restraining [and retraining] an excited amygdala." (Wiley and Simon, 2002, pp. 33)

Indeed "...Joseph LeDoux, [2000] author of *The Emotional Brain*, argues that...all strong emotional memories are neurobiologically indelible. Therapies...can stop the symptoms and gain the person some freedom from them, but...the neuronal residue of the fear remains intact in the amygdala, and may someday return...[T]he neocortex is using imperfect channels of communication to try and grab hold of the amygdala and control it." (Wiley and Simon, 2002, pp. 33-34) This is a researchable issue and by measuring the brain centers involved, we can gain some idea of therapy effectiveness. The neural sites of action for anxiety, fear etc., especially in the right hemisphere, are: amygdala, hippocampus, and the cortices of the periamygdaloid, rhinal, and parahippocampal areas. (Furmark et al, 2002). Nucleus accumbens, amygdala, hippocampus, parahippocampus, hypothalamus, ventral tegmental area, anterior cingulate gyrus (BA 24), caudate, putamen, temporal pole, and insula (Hul et al, 2000). If improvements in the functioning of these areas occur using energy/information psychotherapy methods (which the Hul et al acupuncture data indicate might be so) then we have hope that the memories are NOT neurobiologically indelible.

"Recognizing the centrality of emotion in brain functioning underlines the profoundly collaborative nature of therapy. [If true, this makes the "no talk" and "rapid release" aspects of the energy/information therapies an anomaly. Yet another research area!] In struggling for meaning, weaving stories, and airing grievances, therapist and client are interacting neural net to neural net. 'When a therapist speaks to a patient and the patient listens, ...the action of neuronal machinery in the therapist's brain is having an indirect and, one hopes, long-lasting effect on the neuronal

machinery in the patient's brain, and...vice versa.'" (Wiley and Simon, 2002, p. 34) These changes are possible due to "...[N]euro-modularity [which] 'creates a state in which neuron conductivity is more likely to happen and therefore the brain is more plastic.' ...[T]he more brain networks engaged (especially those involved in emotion), the more pliable the circuitry....'The openness and emotional availability of the therapist seems to be the triggering mechanism...You take those three areas of research -- psychotherapy, attachment, and neurobiology -- and you can make the following statement: psychotherapy which works is using an interpersonal relationship to change self-regulatory circuits of the brain...At the level of the brain, therapy changes the mind by changing neuronal connections.'" (Wiley and Simon, 2002, p. 34)

Neuroscientists "...propose the existence of seven discrete neural systems...brain 'circuits,' each of which activates a specific emotion along with its accompanying, self-perpetuating thoughts and behaviors. The seven primal networks are rage, fear, separation distress (which provokes loneliness and sorrow), nurture, play, lust, 'seeking' the powerful hunting quality that propels us toward our goals. Apparently, when we're confronted by a particular stimulus, a cascade of neurohormones prompts one or more of these 'big seven' mood circuits to activate and commandeer the brain, causing us to feel, think, and behave according to the dictates of the lit-up circuit. Because the emotions, thoughts, and actions of a single mood state tend to powerfully reinforce each other, once we're in the grip of any particular neuroemotional state, it's hard to even conceive of being in another." (Atkinson, 2002, p. 41)

16.2.1.3. LESSON 3: TAILORING INTERVENTIONS TO CLIENTS' BRAIN STYLES CAN INCREASE THERAPY'S EFFECTIVENESS

"...[M]any people are more at home in non-rational, nonverbal modes of communication (visual, kinesthetic, tactile, metaphorical), particularly with the material that therapy often seeks to address." (Wiley and Simon, 2002, p. 35) Multi sensory interventions address this issue. Another way to get this is using a "brain dominance profile" ... "that assesses not just right and left brain dominance, but also the dominant eye, ear, and hand, reflecting more fully people's particular styles for processing information and learning. Under stress and in new learning situations...people have less access to their non-dominant brain, eye, ear, and hand." (Wiley and Simon, 2002, p. 36) See Hannaford, 1997, for details in assessment.

16.2.1.4. LESSON 4: NARRATIVE IS FUNDAMENTAL TO BRAIN FUNCTION AND ATTACHMENT

Storytelling illustrates "...the brain's innate powers of self-creation...the universal human practice of constructing narratives, of drawing from the raw stuff of experience the stories with which our brain explains itself -- to itself and other brains...[T]he neurological subplot...of the well-made story involves the integration of the brain's left and right hemispheres. 'Coherent stories are an integration of the left hemisphere's drive to tell a logical story about events and the right brain's ability to grasp emotionally the mental processes of the people in those events'...Story telling also relies on the prefrontal short- and long-term memory systems and the cerebellum...now believed to coordinate different emotional and cognitive functions [see section 12 of this paper; the REBsm protocol involves the movement of the head and eyes to help in this process]." (Wiley and Simon, 2002, p. 37)

"People tell their stories in therapy. That's how they explain themselves. But they also learn to tell stories, learn how to organize and make something whole from sometimes chaotic feelings...and confusion. The enterprise of therapy is itself a kind of story." (Wiley and Simon, 2002, p. 68)

This tends to be a weakness with the Energy/Information psychotherapy approaches; i.e., they do not encourage clients to "tell their story." Frequently this is the client's choice since once they have eliminated their "psychogabrage" and become clearer on their desired outcome, they don't feel the need.

16.2.2. OGDEN AND MINTON SENSORIMOTOR PSYCHOTHERAPY PROTOCOL

Ogden and Minton (2000) have developed Sensorimotor Psychotherapy, a therapeutic protocol emphasizing the neutral awareness of physical sensations which we have included in thesm protocol (Module 5)

"Traditional psychotherapy addresses the cognitive and emotional elements of trauma, but lacks techniques that work directly with the physiological elements, despite the fact that trauma profoundly affects the body and many symptoms of traumatized individuals are somatically based. Altered relationships among cognitive, emotional, and sensorimotor (body) levels of information processing are also found to be implicated in trauma symptoms. Sensorimotor Psychotherapy [and REBsm] is a method that integrates sensorimotor processing with cognitive and emotional processing in the treatment of trauma. Unassimilated somatic responses evoked in trauma involving both arousal and defensive responses are shown to contribute to many PTSD symptoms and to be critical elements in the use of Sensorimotor Psychotherapy [and REBsm]. By using the body (rather than cognition or emotion) as a primary entry point in processing trauma, Sensorimotor Psychotherapy [and REBsm] directly treats the effects of trauma on the body, which in turn facilitates emotional and cognitive processing. This method is especially beneficial for clinicians working with dissociation, emotional reactivity or flat affect, frozen states or hyperarousal and other PTSD symptoms.... Sensorimotor Psychotherapy [and REBsm], emphasis[e] sensorimotor processing techniques which can be integrated with traditional approaches that treat these symptoms....[T]he therapist's ability to interactively regulate clients' dysregulated states and also to cultivate clients' self-awareness of inner body sensations is crucial to this approach..." We encourage clients to explicitly state their ongoing insights and learnings as they progress through the sessions.

"Sensorimotor Psychotherapy [and REBsm] is a method for facilitating the processing of unassimilated sensorimotor reactions to trauma and for resolving the destructive effects of these reactions on cognitive and emotional experience. These sensorimotor reactions consist of sequential physical and sensory patterns involving autonomic nervous system arousal and orienting/defensive responses which seek to resolve to a point of rest and satisfaction in the body. During a traumatic event such a satisfactory resolution of responses might be accomplished by successfully fighting or fleeing. However, for the majority of traumatized clients, this does not occur. Traumatized individuals are plagued by the return of dissociated, incomplete or ineffective sensorimotor reactions in such forms as intrusive images, sounds, smells, body sensations, physical pain, constriction, numbing and the inability to modulate arousal." (see Levine's approach)

"These unresolved sensorimotor reactions condition emotional and cognitive processing, often disrupting the traumatized person's ability to think clearly or to glean accurate information from emotional states..."

"Sensorimotor Psychotherapy [and REBsm], is a comprehensive method that utilizes the body as a primary entry point in trauma treatment, but one which integrates cognitive and emotional processing as well. [the REBsm protocol includes these aspects but the body's energy/information system is brought into the picture. We believe that this adds greatly to the efficiency of the procedure] We will emphasize sensorimotor processing, which entails mindfully tracking (following in detail) the sequential physical movements and sensations associated with unassimilated sensorimotor reactions, such as motor impulses, muscular tension, trembling and various other micromovements, and changes in posture, breathing and heart rate. These body sensations are similar to Gendlin's (1978) 'felt sense' in that they are physical feelings, but while the felt sense includes emotional and cognitive components, the sensations we refer to are purely physical. [the REBsm does not restrict the focus but accepts what ever comes up, however, with special emphasis on the physical sensations]. Clients are taught to distinguish between physical sensations and trauma-based emotions through cultivating awareness of sensations as they fluctuate in texture, quality and intensity until the sensations themselves have stabilized, and clients are able to experience these sensations as distinct from emotions."

"Sensorimotor processing [and REBsm] is similar to Peter Levine's (1997) 'Somatic Experiencing' in the tracking of physical sensation, but it differs in intent. For Levine, tracking physical sensation is an end in itself; his approach does not specifically include therapeutic maps to address cognitive or emotional processing. Similar to 'Somatic Experiencing,' Sensorimotor Psychotherapy [and REBsm] encourages sensorimotor processing when necessary to regulate sensorimotor reactions, often the case in shock and non-relational trauma, but sensorimotor processing is most often used as a prelude to holistic processing on all three levels (cognitive, emotional, and sensorimotor). [REBsm adds the energy system to the mix]. For example, a traumatized client's affective and cognitive information processing may be 'driven' by an underlying dysregulated arousal, causing emotions to escalate and thoughts to revolve around and around in cycles. When the client learns to self-regulate her arousal through sensorimotor processing, she may be able to more accurately distinguish between cognitive and affective reactions that are merely symptomatic of such dysregulated arousal and those cognitive-emotional contents that are genuine issues that need to be worked through. As this occurs, the approach of Sensorimotor Psychotherapy [and REBsm] might shift from sensorimotor processing alone to include cognitive and emotional processing, and to address relational and transference dynamics as well. Sensorimotor Psychotherapy's [and REBsm] use of the therapeutic interaction to work through relational issues and promote self-regulation can be very effective in the resolution of relational trauma. Thus, Sensorimotor Psychotherapy [and REBsm] lends itself to the treatment of relational trauma as well as shock and non-relational trauma...."

"In Sensorimotor Psychotherapy [and REBsm], top-down direction is harnessed to *support* rather than *manage* sensorimotor processing [which is the intention of Cognitive Behaviour Therapy and similar cognitive approaches. Again, REBsm protocol uses all of these and introduces the body's Energy/Information System into the process]. The client is asked to mindfully track (a top-down, cognitive process) the sequence of physical sensations and impulses (sensorimotor process) as they progress through the body, and to temporarily disregard emotions and thoughts that arise, until the

bodily sensations and impulses resolve to a point of rest and stabilization in the body. The client learns to observe and follow the unassimilated sensorimotor reactions (primarily, arousal and defensive reactions) that were activated at the time of the trauma. Bottom-up processing left on its own does not resolve trauma, but if the client is directed to employ the cognitive function of tracking and articulating sensorimotor experience while voluntarily inhibiting awareness of emotions, content, and interpretive thinking [the witnessing stance], sensorimotor experience can be assimilated. Furthermore, it is crucial that the cognitive direction is engaged to help clients learn self-regulation..." [emphasis added]

The REBsm includes all levels of the issue as described in Module 5 in the clinical REBsm protocol and introduces the body's Energy/Information System into the process (Module 3). We believe that this will make the process much more efficient and complete. The REBsm protocol asks clients to notice, watch, and witness in a neutral manner the various sensations that arise in their "multi sensory review."

16.3. SUBMODALITIES OF RECORDED EXPERIENCE: REFINED ACCESSING OF BODY SENSATIONS

Part three contains a list of submodalities for the different sensory modes

"Submodalities are...neurocognitive properties that the brain uses to construct internal models of the world...[T]hey are one of the most effective tools for influencing the structure of thought, emotions, and behavior itself. (Furman and Gallo, p. 263) "[S]ubmodalities [are] the atomic building blocks of our model of the world, each submodality in itself being an analogical control parameter capable of influencing thoughts, emotions, and behavior from the inside (reference condition), just as effectively as it did from the outside (perceptual condition)...[S]ubmodalities are incorporated initially from our external environment via mechanisms of sensory perception. Learning to direct attention to submodalities dramatically [expands] conscious awareness and the range of control conscious awareness [acquires]...What are submodalities? If each sensory system is considered to be a system in itself, submodalities are the collection of all possible states of that sensory system...For example, submodalities for the visual system include location of the image, brightness, color, contrast, movement, velocity, field size, image angle, image resolution, clarity, and all other analogical differences detectable by that system. Auditory submodalities...include volume, pitch, rhythm, location, duration, cadence, and so forth. Emotions...all have a unique submodality pattern or structure capable of influencing the meaning of an event and one's response to it...[Meaning can]...be altered independent of context or content. Meaning itself [can] be altered by the submodality building blocks, the very structure of an experience. (Furman and Gallo, pp. 19-20) [Part three contains a list of submodalities for the different sensory modes]

The nervous system has two basic methods for encoding experience which can be manipulated using submodalities: Population or number of neurons activated and Frequency or the number of times a neuron fires.

"Population coding is one way in which the nervous system expresses intensity of a stimulus in the information field. The larger the population of neurons activated by the stimulus, the more intense the feeling, emotion, or tactile sensation. [An illustration using the visual system/mode:] "When we perceive (incorporate) an object or an event through our eyes, it is transmitted to the visual cortex to as many as 30 discrete circuits. [One is to the cortex area for spatiotopical mapping.] That is, the

pattern of electrophysiological activity in this part of the brain spatially matches the pattern of activation that a visual image creates on the retina of the eye itself....[T]he spatial relationships of a visual image are preserved... This information is also conveyed to the prefrontal association cortex...[L]ocation is encoded by ...pyramidal cells...In this association cortex, information about one's physiological state is linked with information about the visual image. The somatosensory system, which carries physiological information about emotional state and body sensations, actually indexes the visual image being encoded by these pyramidal cells...This function provides one of the means by which the meaning of a previously stored event can be changed simply by changing the location of a visual image" (Furman and Gallo, pp. 264-265)

"[F]requency coding refers to the number of times a neuron or neuronal pathway fires (propagates an impulse) in a given period of time. The higher the number of impulses per second, the greater the intensity of the stimulus in the information field...[W]hen we ask someone to brighten and internally visualized image, instructions have been given to the nervous system to increase frequency coding of that image and therefore to increase the intensity of the emotions and sensations encoded with that image. The converse is also true..." (Furman and Gallo, pp. 265-266)

The visual-kinesthetic dissociation (V/KD) method uses manipulation of submodalities to reduce the kinesthetic intensity of a memory. "This method requires the subject to recall the experience [that caused the unwanted effect] and make an internal visual image of it... [T]he image is [typically] reported to be 'bigger than life,' occupying their entire internal visual field in their working memory. The first part of the technique simply requires the subject to reduce the size (population coding) and brightness (frequency coding) of the image, which is immediately followed by a corresponding involuntary reduction of kinesthetic (somatosensory) intensity of the connected emotion..." (Furman and Gallo, pp. 266)

16.4. JUDITH SWACK'S STRUCTURE OF LOSS AND VIOLENCE TRAUMA IMPRINTS

Judith Swack (Swack 1994, 2001b, 2002) did pioneering work uncovering the basic structure of beliefs that accompany trauma imprints.

16.4.1. INTRODUCTION

(from 2001b):

"Natural bio-destressing.

Have you noticed that when people are stressed they often:

- ∞ Rub the bridge of their nose by the eye socket
- ∞ Rub the temples by side of their eyes
- ∞ Hold their whole hand on their cheek
- ∞ Put their hand over their mouth, or hold their index finger under the nose, the middle finger under the mouth, and their chin with the rest of their hand
- ∞ Pound or grab their chest under the collarbone
- ∞ Hug themselves
- ∞ Stand with their arms folded, palm of right hand over left ribcage
- ∞ Chew on the edge of their fingers
- ∞ Drum their fingertips on a desk or table
- ∞ Wring their hands

- ∞ Hold their hands with fingers folded together
- ∞ Hold the outside edge of one hand within the palm of the other hand?

"Why do people do that? Everyone I've asked said it was calming, soothing, comforting, grounding."

"Why is that? It is because stimulating these areas of the body activates the calming reflex (also known as the stress relaxation response). This calming reflex directly inhibits the fight/flight/freeze reflex (also known as the sympathetic alarm response) that is active when we are stressed."

"What happens during a traumatic shock? A traumatic shock triggers the fight/flight/freeze reflex, and anything that was in the environment at the time (sights, sounds, sensations) becomes associated with the traumatic reaction. Later exposure to the environmental stimuli present during the original reaction can retrigger subsequent phobic/traumatic reactions (i.e. a flashback)."

"How do we clear traumatic reactions from the mind and body in minutes? People automatically and unconsciously stimulate their calming reflex by touching the areas of the body that I described above. In the [Emotional Freedom Process] technique, a person focuses consciously on the traumatic reaction and systematically stimulates all of these natural bio-destressing points thus inducing the calming reflex and neutralizing the traumatic reaction. From that time forward, the memory of that event is associated with the relaxed state, and the person no longer reacts phobically. It is my feeling that the genius of this technique is not so much the technique itself which we do naturally and unconsciously all the time. I feel that the genius of this technique is that we can *consciously* focus on a traumatic memory and clear the upset *intentionally*. Hence, we have choice about how we feel and react."

"Terrorism is an act of violence and codes as a violence trauma. If you lost a loved one, a job, money, opportunity, freedom, etc. you may also have loss trauma. In my research on loss and violence trauma, I found that people had very predictable reactions that consisted of a series of exaggerated emotions, painful feelings, and irrational beliefs (for a more detailed explanation see 1994, 2002). In both a loss and a violence trauma people usually feel:" [see "16.4.2. Characteristics and importance of trauma imprints" below for more information]

- ∞ "shock/fear, anger/rage., sadness, hurt/pain
- ∞ irrational feelings of guilt, shame, and blame i.e., what happened is my fault; it is people other than the perpetrator's fault; it is God's fault.
- ∞ I am helpless and have no control over the situation.
- ∞ I (we, our country) am bad/unlovable/unwanted/undeserving/unworthy.
- ∞ anticipatory phobias, the dread that the something bad will happen again"

"In violence trauma people often feel:

- ∞ My boundaries have been violated or breached.
- ∞ feeling of pollution: I (we, our country, our environment) feels contaminated by the evil that was done.
- ∞ I don't feel safe; I feel vulnerable. I am a victim; I am a target.
- ∞ People/men/women are dangerous and/or crazy so, I don't trust or I can't receive from anyone.

∞ Power is bad; I am afraid of power (mine and or other people's)."

"In loss trauma people often feel:

- ∞ anxiety about who will take care of me
- ∞ People leave me. I can't trust them.
- ∞ feeling of emptiness/loss"

"Other possible trauma reactions:

- ∞ other emotions such as bitterness, hate, disgust
- ∞ other limiting beliefs or irrational thoughts (such as "this is the end of the world.")
- ∞ feelings of lethargy or inner deadness
- ∞ earlier wounding that got reactivated"

16.4.2. CHARACTERISTICS AND IMPORTANCE OF TRAUMA IMPRINTS

From: "The basic structure of loss and violence trauma imprints," March 1994 [Anchor Point Magazine - The Magazine for Effective Neuro-Linguistic Communication](#)

"Trauma imprints occur in individuals' minds and bodies at the moment they first feel shocked, surprised, and/or frightened during a traumatic experience. This imprint is phobic in nature in that the learning occurs instantaneously at the moment of the initial shock. The imprint remains frozen in the body, and environmental cues can trigger 'flashbacks' of the event unless the trauma imprint is specifically released by interventions that clear phobias. The major characteristic of a trauma imprint includes a sense of being frozen, stuck, unable to breath, unable to change, and unable to access age appropriate resources in specific situations. Additional diagnostic indicators include unwanted irrational or exaggerated emotional reactions (responses that people know are inappropriate but are unable to suppress during the reaction), and repeating nightmares. Trauma imprints are more complicated than simple phobias because they are layered. In addition to fear, there are the intense negative emotions of anger, sadness, hurt and guilt or shame. At the same time, people make irrational decisions about themselves, the situation, and the world in general. These decisions can undermine their self worth and confidence."

"...[T]his study ...examine[s] the structure of two major categories of trauma imprints, loss and violence. Experiences that predictably cause loss trauma imprints include unexpected loss of a family member, spouse, or friend through death or divorce, actual or apparent abandonment, a sudden health crisis resulting in loss of function, and loss of a job. Experiences that predictably cause violence trauma imprints include verbal, physical, or sexual attacks on individuals or their property. Sometimes a traumatic experience will cause an individual's personality to fragment into conflicting parts, and sometimes the damaged parts are suppressed. When I [Swack] find a 'part' of a client that will not admit to having a positive intention and that cannot be reframed, I [Swack] know that the client has experienced a trauma. Sometimes trauma incidents are so terrible that people's unconscious minds protect them by suppressing entirely the memory of the event. In these cases, clients may suspect that something bad has happened to them because they have repeated bad dreams or small flashes of memory, someone else tells them about the event, or they are aware that their behavior and emotional reactions are different from those of others in similar situations."

"It requires a lot of energy to suppress and compensate for a trauma imprint with its accompanying layers of negative emotion and limiting beliefs. This energy drain makes it difficult for people to be

completely successful, to fully enjoy their life in the present, and to easily progress into the future. Like a dormant volcano, the whole experience can erupt at anytime causing anxiety and pain. If the trauma occurred early in life it can freeze clients' emotional development in some contexts, and block their ability to develop into powerful, resourceful, successful, productive, and complete adults."

"From my [Swack] specialization in phobias and in health problems, I [Swack] found that many of my clients carried loss and violence imprints **even though they were not initially aware that this was the cause of their presenting problems.** Two clients presented with seemingly simple phobias (fear of heights and claustrophobia in subways) which were in fact related to loss of their fathers at age two-three years and at age eleven months, respectively. Several clients manifested compulsive/addictive behaviors such as workaholism, food addiction (binge-eating), and relationship addictions or dysfunctions stemming from loss or violence traumas. Disease symptoms that disappeared following trauma intervention included cancer, acute episodes of multiple sclerosis, chronic fatigue syndrome, recurring viral upper respiratory infections, and musculo-skeletal pain. In addition, 50-70% of allergies could be traced to a traumatic reference experience which needed to be cleared before the immune response could be permanently corrected." [emphasis in original]

"If trauma imprints are so damaging to people, why do we have the neuroendocrine hardwiring for this physical reflex? A possible answer to this question came to me as I [Swack] listened to a friend describe a motorcycle accident. Although he was badly injured, he **felt no pain and was able to function** well enough to get himself to a hospital. People who lose loved ones often make the funeral arrangements in a **numb state that enables them to function.** Clearly, this reflex is a survival mechanism that allows people to function without becoming overwhelmed by pain for 24-48 hours after an injury." [emphasis in original]

"Why is the same reflex triggered by the pain of an emotional trauma as well as a physical trauma? Perhaps the unconscious mind or body cannot distinguish physical from emotional pain since emotions are feelings felt in the body. Unfortunately, the frozen state remains in the body memory long after the triggering event resulting in the lingering emotional and physical discomfort characteristic of phobic trauma imprints. Because of the far-reaching consequences of trauma imprints, I decided to define the core structure of loss and violence imprints and devise a treatment protocol for clearing the entire pattern. The patterns described below were distilled from experience with more than eighty clients during the last ten years. All of the elements outlined in the core structure are common to **every one** of the clients studied. The exact wording of some of the core beliefs varies with the individual, but the meaning is the same. Additional beliefs not listed in the outline, underlying causes, and some of the behavioral manifestations associated with the imprint are idiosyncratic." [emphasis in original]

16.4.3. OUTLINES OF LOSS AND VIOLENCE TRAUMA IMPRINTS

16.4.3.1. LOSS TRAUMA IMPRINT

16.4.3.1.1. Initial Shock

- A. Shock/Fear
- B. Anger/Rage
- C. Sadness
- D. Hurt/Pain

16.4.3.1.2. Limiting (core) Beliefs

- A. Responsibility (guilt/shame/blame)
 - 1. It's my fault because _____
 - 2. It's other people's fault because _____
 - 3. Disconnection from God. It's God's fault because (How could God let this happen? There is no God.) _____
- B. Who will take care of me?
- C. People leave me. I can't trust them.
- D. I am powerless or helpless/I have no control.
- E. I am bad/unlovable/unwanted/undeserving-unworthy.

16.4.3.1.3. feeling Of Emptiness

16.4.3.1.4. Root Cause: the Setup.

16.4.3.1.. Anticipatory Phobia

16.4.3.2. VIOLENCE TRAUMA IMPRINT

16.4.3.2.1. Initial Shock

- A. Shock/Fear
- B. Anger/Rage
- C. Sadness
- D. Hurt
- E. Feeling Vulnerable/Boundary Violation or Breach
- F. Feeling of Pollution

16.4.3.2.2. Limiting (core) Beliefs

- A. Responsibility (Guilt/shame/blame)
 - 1. It's my fault because _____
 - 2. It's other people's fault because _____
 - 3. Disconnection form God. It's God's fault because (How could God let this happen? There is no God.) _____
- B. I don't feel safe. (I am a victim. I am a target.)
- C. People/men/women hurt me and/or are dangerous and/or are crazy. Thus:
 - 1. I don't trust anyone.
 - 2. I can't receive from anyone.
- D. Power and control issues

1. I am powerless/helpless. I have no control.
 2. Power is bad.
 3. I am afraid of power (mine and or other people's).
- E. I am bad/unlovable/unwanted/undeserving-unworthy.

16.4.3.2.3. Root Cause: the Setup.

16.4.3.2.4. Anticipatory Phobia

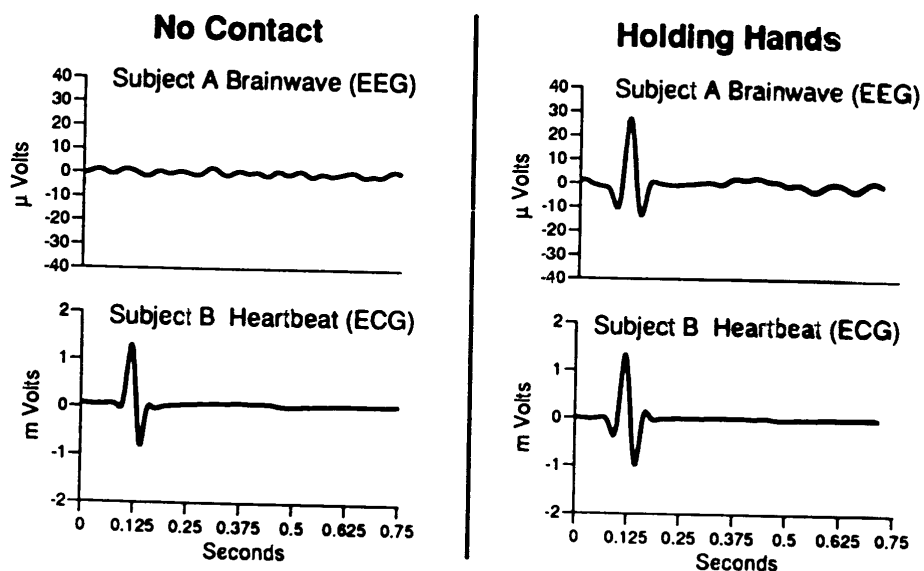
16.5. CLIENT-COACH/"HEALPER" TOUCHING (PHYSICAL CONTACT)

"Touch has long been associated with out-of-control sexuality and emotional dependence. As a result, it's been more or less exiled from many psychotherapists' offices. [so much so that in some jurisdictions it is illegal except with a special license]. Yet touch and contact are basic to our experience of security, connection, separateness and solidity... [E]arly touch, or lack of it, influences neurological development and biochemistry... Touch is imbued with communication... For some clients, early [abusive] touch and lack of touch formed an internal reality that can't be changed by words alone... Dissociation -- the split between the head and the body -- can result from the absence of touch, just as it does from abusive touch... Touch can humanize and ground the therapeutic relationship. The educated use of touch can remediate severe forms of abuse and neglect, and normalize the most basic of our human experiences -- that of being in a body"(Goodrich-Dunn, 2004, pp. 40-41, 64)

McCraty et al. (1998) experimentally demonstrated the impact of touching between people (see Figure 16.1). They measured the heart rhythm (ECG) of the sender and the brain wave rhythm (EEG) of the receiver. When there was no contact between the two the heart-brain rhythms were independent and uncorrelated. However, when they held hands, the sender's heart rhythm entrained the receiver's brain wave. This happens because the electromagnetic influence of the heart is much stronger than that of the brain. Thus, when people embrace they are literally influencing each others bio-rhythms. Watch out who you hug! Their "stuff" can definitely affect your "stuff" and both bad (incoherent rhythms) and good will have an impact. The "healper" thus needs to be in a coherent state to actually help the client via touch.

The Electricity of Touch

Heartbeat Signal Averaged Waveforms



Heartbeat signal averaged waveforms showing a transference of the electrical energy generated by Subject B's heart which can be detected in Subject A's EEG (brainwaves) when they hold hands.

Figure 16.1

The REBsm protocol doesn't require any touching and, since it doesn't use any diagnostics of manual muscle (energy) checking like some energy-information protocols (e.g., Swack's Healing from the Body Level Up - HBLU, and Gallo's Energy Diagnostic and Treatment - EDxTm), it has an advantage for psychotherapists who are not allowed or are reluctant to touch clients. It relies primarily on noticing for tracking the process of the session.

However, there are two described touching activities in the REBsm protocol: Module 3f and 3g which were initiated and recommended by Janet Nestor. This "educated use of touch" is very therapeutic and transformative. Module 3f is the "Reki harmony position" which physically connects the front brain with the back (occipital lobe, cerebellum, and brain stem). Touch in the front brain areas involves the traditional "Stress Release Points" located on the bumps just above the eyes. The natural spontaneous gesture of putting your hand on your forehead when under stress is very common and when done by another person with a healing intention, it has a powerful calming effect. Module 3g is the "Brow/crown holding posture" and connects two energy plexus (Chakras). According to Janet Nestor it has more spiritual effect facilitating a stillness, resting of thoughts, a feeling of being in the presence of something holy. Both of these postures can be done by the client alone as well, but their power increases when done by a "healer" with a healing intent.

Although not part of the written instructions of the REBsm protocol, other touching activities are certainly possible. In an E-mail (2004 Aug 17), Janet Nestor wrote the following: "I am learning that for some people who are more spiritually and energetically aware [I can't make this universal at this time], ...that when they are in the REBsm position and I am using reflexology type pressure on points or muscles that the client is able (when instructed to go to the intuitive) to identify the issue buried in the tissue and release it via REBsm. This is amazing really! Fast. Accurate. etc. I say while pressure is applied to a point: 'What is this saying to you... what do you hear?' and they are able to come up with deep profound insight into their issue, then release it with REBsm and the bi-lateral squeezing. They integrate change quickly when working this way."

16.6. TOUCHING, TAPPING, RUBBING AND MOVING NEURO-HUMORAL MODEL of Joaquín Andrade

Joaquín Andrade provides this **NEURO-HUMORAL** model of the mechanisms of effectiveness of therapies. [first sent 2003 January 28 from Joaquín Andrade, M.D. to the "Energym" discussion group.] The research and development group (BMSA International, Brief Multi Sensory Activation, at <http://www.bmsa-int.com>) comprising Joaquin Andrade, Maarten Aalberse and Christine Sutherland was established in 2005.

"There are different metaphors that try to explain why tapping [and other energy/information psychotherapy methods] works. We prefer to call tapping 'Brief Multi Sensory Emotional Interventions.'

"Brief, because rapid responses are one of its characteristics.

"Multi Sensory, because most systems use at least three senses: somato, sensory and kinesthetic, when we tap, hold, rub or adopt certain positions and do some movements of limbs and trunk and do some breathing, visual, external or internal and auditory, also external or internal when we hum, count, do affirmations, etc. Recently, we have started to experiment with smell and taste, which are so related to memory recall and emotional states.

"Emotional, because those sensory stimulations are aimed at treating emotions, and

"Interventions, because there are intention driven maneuvers that we do to the patient or teach her/him to do to him/herself."

"This [2004 22 March posting to the "Energym" discussion group list] is an updated version of Neurohumoral Mechanism of Tapping [first posted to the "Energym" discussion group list on 2003 January 28 from Joaquín Andrade, M.D.]. At a recent international meeting, I gave it to four Professors of Neurology, one neuroscientist and one Ph.D. specializing in emotions. All of them said that it was perfectly verifiable and in accord to present knowledge."

"However, I think it's just one more metaphor. Here's for you to judge and make it better..."

16.6.1. Introduction

"Many clinicians have observed that different sensory stimulation yields some results on some persons and some disorders."

"Sensory stimulations used are mostly kinesthetic, either external or internal (tapping, massaging or holding certain loci on the skin, adopting certain positions of the body, arms and legs, breathing,

etc.), visual, external and internal, different protocols that include eye movements, blinking, etc.) and auditory-verbal, also external or internal, (counting, chanting, doing affirmations, talking about something, etc.). We have also explored the use of two additional senses, taste and smell as extra ways of inducing sensory overload."

"Absolute requisite for results, is that a very specific representation of the problem (the core issue, as memory, sensation, emotion, imagination, etc.) is clearly present at the conscience at the same time that stimulations are made."

"As most emotional disorders are vulnerable in a short time to these techniques, we have proposed the conceptual name of 'Brief Multi Sensory Emotional Interventions.'"

16.6.2. Different Metaphors to Explain "Why"

"The obvious clinical results of tapping have been explained by many theories and metaphors, most of them never verified. The existence of so called 'meridians' and 'points,' the flow of an 'energy' along them, the 'chakras,' the existence of 'disbalances' in the network, or 'perturbations,' etc."

"So what do we really have, and what can we really verify?"

"The 14th century British philosopher, theologian and Franciscan monk, William of Occam (1285-1349), frequently used, in his arguments against papal power, the so called Principle of Parsimony or Simplicity: 'Plurality should not be assumed without necessity'. The principle is used as a logical tool to eliminate pseudo-explanatory excesses and decide among explanations, one should always choose the explanation of a phenomenon that requires the fewest assumptions or leaps of logic. In any given explanation, 'Occam's razor' helps us to 'shave off' the concepts, variables or constructs that are not really needed to explain the phenomenon."

"Being reasonably updated with the tremendous amount of information that the neurosciences offered us in the last ten years, and applying 'Occam's razor', along with the Principle of Uncertainty Maximization, widely used in the field of mathematical modeling of systems, which states that in inductive reasoning, 'use all, but no more than the available information,' the mechanism of tapping can be explained with enough scientific rigor in about 80% of the cases."

In my (PWW) opinion, Andrade's model provides a bridge between Eastern and Western views of the mechanisms of intervention. It doesn't provide a complete explanation of the power and efficiency of the energy/information psychotherapies. The current research in China on Traditional Chinese Medicine (TCM) focuses on the correlations between the two approaches. I hope that this project does not throw out the very useful methods of TCM so that the unfamiliar (to Western science) metaphors of TCM can be in agreement with the Western (mainly 19th century materialistic reductionism) metaphor.

16.6.3. Afferent Sensory Stimulations

"These techniques use the somato-sensory system, known for fifty years. Distributed all over the extension of the skin, but with different concentrations in different areas, there are sensory receptors specialized in receiving, transducing and sending to the CNS [Central Nervous system] all kinds of mechanical stimuli: the mechano receptors (Pacini, Meissner, Ruffini, Merkel's discs, free nerve endings, etc.)."

"Mechanical stimuli on those areas (tap, touch, hold, rub, etc.) is transduced into digital signals mediated by the Ca [calcium] ion ... that travel by the afferent somato sensory pathways to the brain."

"Mediation of Ca ion in signal transduction can be demonstrated by the suppression of signal registration after the local injection of a chelating agent (Andrade et al, preliminary studies). One thing we can be sure about is that every time we tap or do any other kind of mechanical stimuli to any area of the skin, we are involving the mechano receptors."

"In other type of interventions, such as collar bone breathing, excess of energy correction and Wayne Cook posture, there are also involvement of muscle Golgi-Mazzoni proprioceptors and joints unencapsulated receptors."

16.6.4. The Pathway

"Traveling by regional nerve trunks, A Beta myelinated axons, that end in dorsal roots and ganglia (I neuron), the signal reaches the medulla. Due to upper and lower, intra and inter dermatomic bifurcations, stimuli initiated in different anatomical localizations can end on the same pathway, which could partially explain why different protocols get similar results...The signals travel upward through the medulla, contralaterally following the median lemniscus (II neuron) and ipsilaterally along the dorsal medulla and reach the thalamus, where they synapse in the anteroposterior lateral nuclei and finally ascend by the cortico-thalamic neurons to the somato sensory cortex at the parietal lobe, the four Brodman areas: 3b, 3a, 1 and 2."

"The thalamus modulates the afferent sensory inputs, widening or narrowing the focus to increase the transmission in relevant areas and to inhibit the non relevant signals under those particular circumstances. From the thalamus, particularly from its auditive area (LeDoux, Woodson) neurons are sent to the amygdala, that synapse with GABAergic inhibitory interneurons of the lateral nuclei of the amygdala."

16.6.5. At the CNS

"From there, signals travel to cortical areas of higher hierarchy, including the prefrontal cortex, and to deeper limbic structures that have high significance in emotional modulation."

"Several studies of functional brain imaging (Hui et al, Andrade et al, preliminary report) have repeatedly demonstrated that when different types of mechanical stimuli are applied to the skin, fluctuation of signals can be registered at least at two different cortical areas distinct from the somatosensory cortex:"

"INCREASE OF ACTIVITY in the orbito frontal regions at the base of the prefrontal cortex and at the posterior thalamus; and"

"DECREASE OF ACTIVITY in at least ELEVEN deep structures, some of them strongly involved with emotional processing: Hippocampus, para-hippocampus, hypothalamus, amygdala, putamen, caudate nucleus, anterior insula, cingulate anterior gyrus, ventral-tegmental area, nucleus accumbens and temporal pole."

"The amygdala acts as a parallel processor, receiving, in one of its subsystems, the baso-lateral nuclei, (where the stimuli that condition the fear response are stored ...), mono-synaptic projections from the dorsal hippocampus, the thalamus and the cortex. The other important subsystem of the amygdala is the central nucleus, efferent, that sends signals to different brain areas involved in the autonomic and behavioral responses to fear."

"Ruden notes that as the central nucleus of the amygdala projects fibers to different CNS structures related with stress, trauma, mood disorders and addictive behavior, functional actions of tapping interventions on them can be predicted, strictly based on the existence of those neural paths."

16.6.6. Experiencing Emotions

"Actually experiencing an emotion, or recalling a past emotional memory as we do when tuning with the problem, INCREASES the activity at the amygdala and other limbic structures, as can be easily demonstrated with different imaging equipments."

"Just recalling a traumatic memory (which includes a superposition of visual, kinesthetic, auditory, smell and taste perceptions) places that memory in a labile state which is sensitive to disruption, as have been suggested four years ago by a group of fear researchers at Prof. LeDoux's lab at NYU (Muller, Izquierdo, Brioni, Nader, Schafe, Debiec and others). To retain the memory's consolidated state, protein synthesis at the LBA, or lateral basal nuclei of the amygdala is required. So, reconsolidation after reactivation and consequent lability to disruption, is a protein synthesis dependent state. The researchers injected the protein synthesis blocker anisomycin (aniso) to prevent reconsolidation, and the memory, in its labile state, was disrupted."

"Then, recalling a traumatic memory that is capable of producing anxiety symptoms, and of INCREASING the activity at the amygdala and other structures, and while holding this 'increased activity state,' I send to these same areas emotionally neutral sensory perceptions (like tapping on the skin) these neutral sensory signals that are capable of DECREASING the activity at the amygdala, act on the not so neutral sensory perceptions that are an important part of the traumatic memory and probably by synaptic inhibition (DECREASE of the activity) disorganize, interfere and add entropy to the previous increased-activity emotional state, collapsing its symptoms-generating ability. Bandler's empirical work on sub modalities suggests that when we change the sensory perceptions of a traumatic memory, its symptoms-generating power also weakens...sometimes, almost instantly. [Garry] Flint also suggests that sensory stimuli and other interventions, like [his] Process Healing, act by generating a learning process, which in part is also neurologic, that changes the relation between traumatic memory and emotions."

"The lability and vulnerability to distortion that memories exhibit when retrieved has probably two evolutionary purposes: first, the possibility of the progressive generalization of the response, as new associations can be made, which improves the probability of surviving, and two, the possibility to direct attention to relevant aspects of the environment, which also helps to avoid or neutralize dangers (Ekman, Frijda, Izard, Derryberry and Tucker) It is not that memories (traumatic memories to our effects) are being erased, which, as suggested by recent research by Lattal, Abel et al at Penn's Dept. of Biology, rarely happens. It's more that they remain stored but have lost the power to generate symptoms i.e. disruptions."

16.6.7. The Interventions

"From a neurohumoral perspective, all tapping systems have two distinct components: 1. Reactivation of the memory to make it vulnerable to distortion, and 2. Simultaneous sensory overload, that sends, afferently, modulated signals also sensory in nature, but with zero emotional meaning. Those signals probably disorganize, overload, interfere, and add entropy to the memory [see M.E. Furman and F.P Gallo], which loses its power to generate symptoms, even when it is never deleted."

"Different eye movements, auditive and verbal inputs, as well as olfactory and gustatory signals follow a similar model, traveling by shorter and less complicated neural paths."

"Ruden suggests that the sensory interventions distort signal transmissions between the amygdala basolateral and central nuclei, blocking the generation of fight and flight symptoms."

"It is possible that the neurotransmitters GABA, serotonin and the intraneuronal second messenger nitrous oxide play critical roles in this mechanism, through complex feedback and feedforward functional interconnections. Maybe that's why lab tests in several anxiety disorders show elevated norepinephrine and low GABA and serotonin."

"The GABA system in particular, plays a crucial role in anxiety control. It is known that benzodiazepines link to specific sites of the GABA receptors and enhance its mutual affinity, which results in an activation of the Cl [chlorine] ionic channels, and that the GABA agonist muscimol inhibit the fear response (Muller, Izquierdo, Brioni, Stork)."

"As most functional events in the CNS are at the same time or sequentially ionic or chemical, in which depolarizations are almost always accompanied by ionic movements of Cl [chlorine], Na [sodium], K [potassium], Ca [calcium], and elevations or decreases in neurotransmitter concentrations, this mechanism is called neurohumoral."

16.6.8. What For?

[from the 2003 post] "This model is not better than others. It simply describes events that actually happen and can be demonstrated and replicated by others...which is not so with other models. No doubt it represents a partial explanation of clinical results, [but it] has plenty of potential for future research and is easily accepted by mainstream health professionals. My guess is that in the future there will be many efforts in this direction. This is already happening with acupuncture."

"The neurohumoral theory of tapping mechanism is no more than another metaphor. It doesn't exclude other explanations. It also has six distinct advantages:"

- 1.- It's based on classical concepts and updated research on CNS.
- 2.- Speaks the language of science and is perfectly well accepted by MD's, Ph D's and other scientists.
- 3.- Follows Occam razor, tries to have logical coherence.
- 4.- Offers many lines to research.
- 5.- Gives logical explanation for relapses.
- 6.- Same with non respondents."

The REBsm explicitly seeks to integrate approaches from both traditional body based and energy/information psychotherapies.

16.7. ENERGY MEDICINE MODEL of Oschman

When I finished reading Oschman's brilliant synthesis (2000, Energy Medicine: The Scientific Basis) I came away with the belief that no therapy (cognitive, hypnotic, energetic, or what have you) would be complete without some form of body work or movement treatment. At least I think that all therapists, of whatever persuasion, must seriously consider including movement, stretching, etc. as an adjunct to their regular therapy. The REBsm uses squeezing, blinking, rocking, head and eye movements, postures. While doing the various movement and stimulus activities, clients are tuned into the sensations experienced, maintaining a witness orientation and when there is a change in the felt sense (an indication of energy shifting and thus of progress) they are instructed to send a positive emotional feeling sense to their system (especially the heart) for making this change.

His newest book (2003, Energy Medicine in Therapeutics and Human Performance) expands on this. To quote from Pressman's review "...[T]here is a system within the body, actually the largest system, called the connective tissue. This is what we look upon ordinarily as 'gristle,' tendons and fascia. Every organ in the body, indeed every cell in the body is encased in connective tissue. What has been discovered recently is truly remarkable. That is that this connective tissue continues within the cell plasma, and this continuation is in the form of a kind of bony structure called the 'cytoskeleton' (cell skeleton). And furthermore, the continuation continues by going within the nucleus. What are the implications? Mostly that there is indeed a continuum within the body, a wholism, which has been neglected by our scientific and medical researchers. One part of the body not only knows what every other part of the body knows (every cell, every interior of the cell) but also is reactive to it."

"What is equally important is that each cell within the body, each cell within the continuum of connective tissue, lines up, migrates, forms, vibrates with electro-magnetic energy and forms a second nervous system! This does not neglect the well-known nervous system that begins with the brain and extends to the spinal cord and the peripheral nerves. Indeed it does not; but it does define a second nervous system which also affords a basis for acupuncture, and which operates at the same time as the central nervous system. This second system, mediated by the connective tissue, is part of an ancient nervous (awareness) sensorial complex. This is seen in the reactivity of the most primitive organisms, such as bacteria and protozoa. These little beings are able to sense the environment, react to the environment to protect themselves, and explore the environment to find

food and sustenance. This ancient communication system operates underneath and ahead of the central and peripheral nervous system.”

“The implications of all of this is that there is a wholism within the body, a wholism in which each part connects with the other -- instantaneously and ongoingly. Each part adjusts, and the best result in terms of health and performance arrives when there is the greatest coherence or flowing together or acting together.”

“Furthermore, it has been discovered that whereas our approach (to healing and understanding body function) has been through chemistry, trying to find the right chemical reaction and the right pill to set things aright, the ongoing reactions are truly electro-magnetic. There is a flow within this connective tissue that is twenty times faster than that which runs through the central nervous system. There is an instant reactivity. This was noticed when Oschman described a fly flying onto an eyelash. The blinking of the eye is so fast as to be far beyond that which is mediated by the central nervous system.”

“There is within the body such a thing as a piezoelectric response. As soon as any tissue is bent or stretched, there is an outpouring of electricity in turn creating a magnetic field. It is the circuitry through which these flows take place that is the basis for the acupuncture meridians. These meridians support the flows of energy from the piezoelectric effect, but they also support many other kinds of regulatory flow, including those involved in emotional expression. This flow of electromagnetic energy is also the basis of transmission of information and even the evocation of the chemical reactions within the body.”

“This magnetic flow is best when everything is coherent, meaning flowing together. This is the ‘zone’ of exceptional human performance, or the ‘zone’ of exceptional human health. Furthermore this flow of electro-magnetic energy goes beyond the body, creating electro-magnetic waves that we call the ‘aura.’ It extends so that we can feel (if we allow ourselves to be sensitive) a good environment or an unhealthy environment, a good person or one who may not be so good. This is an exchange with the environment. This is the opportunity to receive healing vibrations from the hands of a Reiki practitioner or a hands-on therapist-or even the intentions of a good physician as opposed to one who is overly-hard-pressed and in a hurry.” (Pressman, 2004, pp. 14, 20)

Any psychotherapy that doesn't get out of its mind will be less effective and less efficient!

The following are some of the more relevant quotes taken from his extensive and detailed examination. (pages refer to Oschman, 2000)

CELL STRUCTURE AND THE "LIVING MATRIX"

This topic deals with the structure and energetics of the material substrate of the body.

CELL STRUCTURE AND THE "LIVING MATRIX"

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16.7.1. THE CELL IS NOT A BAG

"...[T]he cell is...filled with filaments and tubes and fibers and trabeculae--collectively called the cytoplasmic matrix or cytoskeleton." (p. 45)

16.7.2. CONTINUUM

[T]he cellular matrix is connected, across the cell surface, with the connective tissue system or extracellular matrix... [There is a] whole class of 'trans-membrane' linking molecules, or 'integrins'... The boundaries between the cell environment, the cell interior, and the genetic material are not as sharp or impermeable as we once thought... The entire interconnected system has been called the connective tissue cytoskeleton, the tissue-tensegrity matrix. or simply, *the living matrix* ... 'the web that has no weaver. The living matrix is a continuous and dynamic 'supramolecular' webwork extending into every nook and cranny of the body; a nuclear matrix within a cellular matrix within a connective tissue matrix. In essence, when you touch a human body, you are touching a continuously interconnected system, composed of virtually all of the molecules in the body linked together in an intricate webwork. The living matrix has no fundamental unit or central aspect, no part that is primary or most basic. The properties of the whole net depend on the integrated activities of all the components. Effects on one part of the system can, and do spread to others... [T]he various parts and systems of the body... can be regarded as a local domain or subdivision of a continuous web." (pp. 45-48) [emphasis added]

16.7.3. INFORMATION FLOWS

"[I]n order to survive, complex living systems require an intricate web of informational processes. Each component must be able to quickly and appropriately adjust its activities in relation to what the other parts are doing... The biology of wholeness is the study of the body as an integrated, coordinated, successful system. No parts or properties are uncorrelated, all are demonstrably interlinked... [C]ommunications in living systems involve two main languages: the chemical and energetic. Chemical regulations are carried out by hormones, various 'factors'..., and the various 'second messengers' within cells... [E]nergetic interactions are of two kinds, electrical and electronic. The electrical activities of nerves and muscles [are one kind], but there are many other kinds of energetic signaling systems... The entire living matrix is simultaneously a mechanical, vibrational or oscillatory, energetic, electronic, and informational network... Hence the entire composite of physiological and regulatory processes we refer to as 'the living state' take place within the context of a continuous living matrix... [E]very cell receives information on the activities taking place in every other part of the body... Physiological integration is possible because every cell and every molecule fine-tunes its activities appropriately... [T]he living matrix itself is a high-speed communication network linking every part with every other." (pp. 49-51) [emphasis added]

16.7.4. BIO-ELECTRO-MANETIC FIELDS OF THE HUMAN BODY

The schematic of the various electromagnetic fields of the body are given in Figures 16.2. to 16.5.

To quote from Oschman (p.77., Figure 6.2) "The overall biomagnetic field of the human body as visualized IN POLARITY THERAPY. Each organ and each tissue contributes to this pattern, which varies from moment to moment in relation to functional activities. The overall shape of the field

results mainly from currents set up in the body by the heart, which produces the strongest biomagnetic field. The field is comparable in shape to that developed by ... [a] coil is centered around the body axis because of the helical flow of heart electricity through variety of tissues. The main flows are through the circulatory system, which is a good conductor because it is filled with saline solution, plasma. As with the coil ..., blood flow up and down through the aorta and major arteries is helical. Muscles are also good conductors of electricity, particularly along their longitudinal axes. There is resistance to current flow across the belly of a muscle. The musculature of the heart and arteries all the way down to the pre=capillaries is helically oriented ... As the vascular system begins at the heart and extends into every nook and cranny of the body, it is ideally suited to distribute heart electricity to all of the tissues. (There are about 50,000 miles of blood vessels in the body). In addition, currents set up by the heart flow through the vertically-oriented muscles associated with the vertebral column and backs of the legs – the erectors and hamstring system. ... [Figure 16.3.] ... shows a representation of the field around the head in an etching drawn by Edwin D. Babbitt (1896), and is abased on the patterns of light he observed around the body after spending some weeks in the dark, which greatly increased his visual sensitivity. ... The pattern drawn by Babbitt corresponds primarily to the biomagnetic field expected from movements of nerve impulses through the corpus callosum connecting the two hemispheres of the brain.”

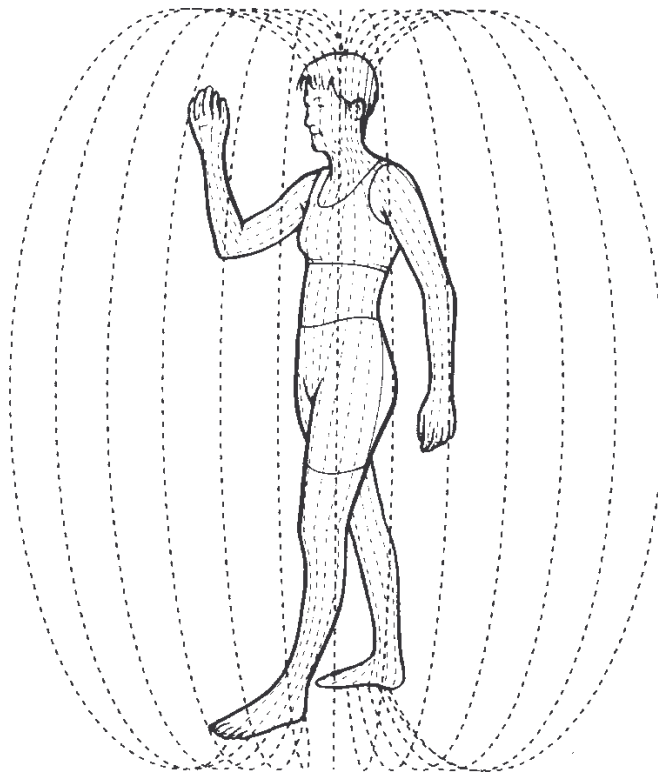


Figure 16.2. The bio-electro-magnetic field of the whole body.

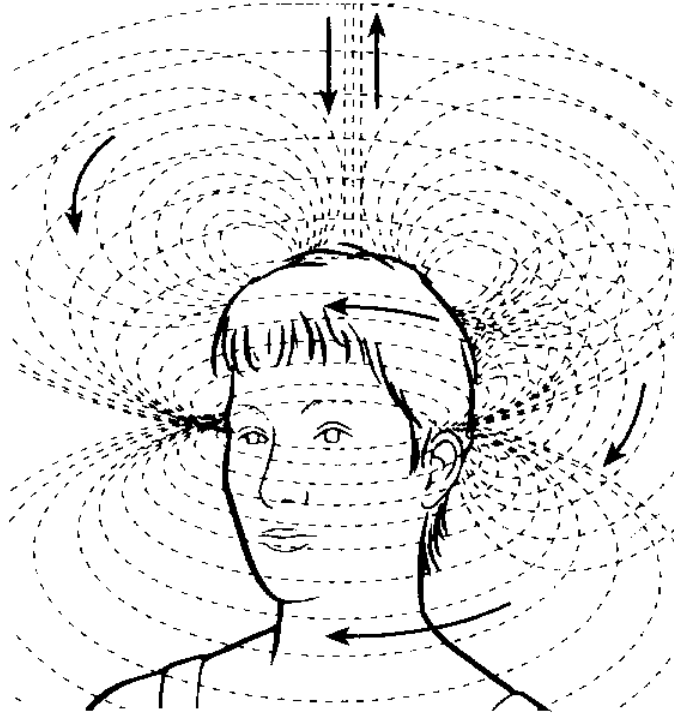


Figure 16.3. The bio-electro-magnetic field of the head.

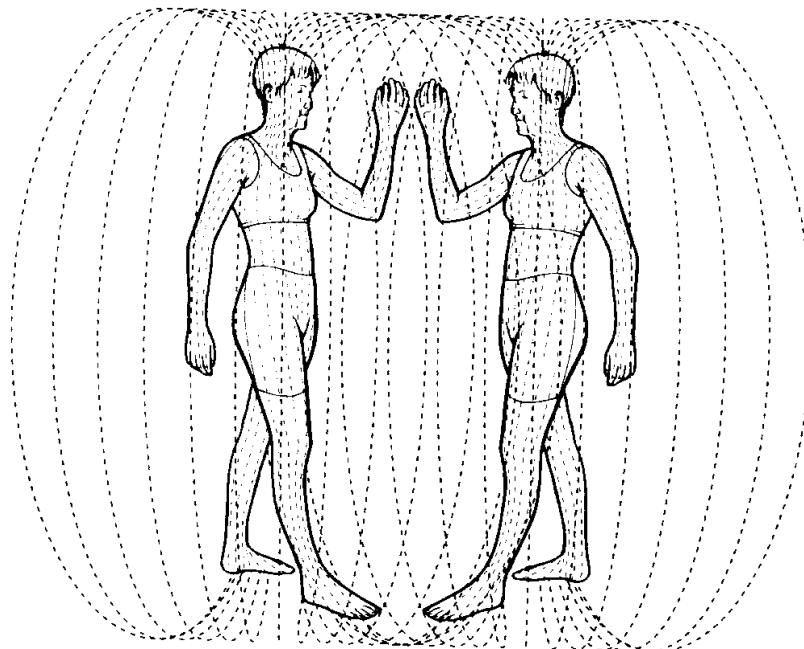


Figure 16.4. The bio-electro-magnetic field of two nearby people.

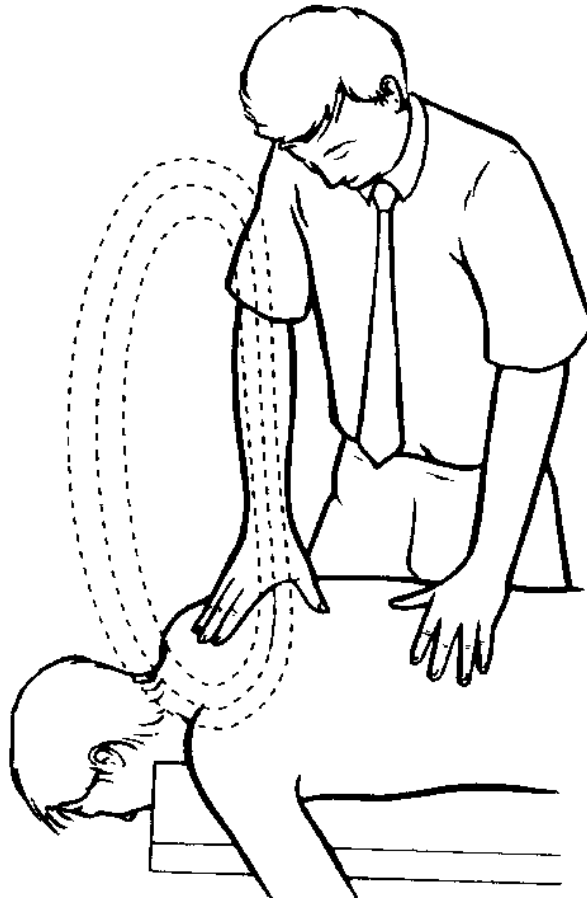


Figure 16.5. The bio-electro-magnetic field of “hands on bodywork”. “Superimposed on a diagram of a soft tissue manipulation (thumb technique) is the pattern of biomagnetic emanations from the practitioners hands.”

16.7.5. PROPERTIES OF THE LIVING MATRIX

“The living matrix continuum includes all of the connective tissues and cytoskeletons of all of the cells, throughout the body. We can summarize its properties as follows:” [emphasis added]

“All of the great systems of the body -- the circulation, the nervous system, the musculoskeletal system, the digestive tract, the various organs and glands -- are everywhere covered with material that is but a part of a continuous connective tissue fabric [this is called the peri- systems or collectively the 'surrounding tissues.'].... The connective tissues form a mechanical continuum extending throughout the... body, even into the innermost parts of each cell... The connective tissues determine the overall shape of the organism as well as the detailed architecture of its parts... All movement, of the body as a whole or of its smallest parts, is created by tensions carried through the connective tissue fabric... Each tension, each compression, each movement causes the crystalline lattice of the connective tissues to generate bioelectronic signals that are precisely characteristic of those tensions, compressions, and movements... The connective tissue fabric is a semiconducting communication network that can carry the bioelectronic signals between every part of the body and every other part.” (p. 55) [emphasis added]

16.7.6. COHERENCE

"[N]earby molecules interact with each other via electromagnetic fields... [C]rystalline molecular arrays should vibrate strongly and coherently... [E]normous electrical fields developed across cell membranes, with the inside negative relative to the outside. Electrical fields are also generated in the collagen arrays to connective tissues (tendons, ligaments, bones, cartilage, fascia) during movements. Activities such as nerve conduction, muscle contraction, and glandular secretion also produce electrical fields. Each activity in the body creates a characteristic field pattern. Moreover, the whole body is polarized, with the head-end negative and the tail- or foot-end positive. Research on electrically polarized molecular arrays reveals that interactions... repeated by the millions of molecules within a cell membrane, tendon, muscle, bone, nerve cell, or other structure, give rise to huge coherent or laser-like vibrations. The vibrations are collective or cooperative phenomena, in which all of the weakly vibrating parts, in the presence of an electric field, become coupled. The result is a strong, orderly, and stable vibration that is far more than the sum of individual vibrations... [T]wo 'new qualities' arise [from these oscillations]. The first is that the crystalline molecular arrays found throughout the body are exceedingly sensitive to energy fields in the environment... The second... is that strong oscillations can travel about within the crystalline network of the body and they can be radiated into the environment... Crystalline components of the living matrix act as coherent molecular 'antennas,' radiating and receiving signals... [T]he water in the spaces between parts of the highly ordered systems is also highly organized. Vibrations of the water molecules can couple to the coherent energy patterns within the protein array. The resulting coherent water system has laser-like properties, and is likely to retain and release electromagnetic information, i.e., have a form of memory." (pp. 130-131) [emphasis added]

16.7.7. CELLULAR OSCILLATIONS AND SYSTEMIC REGULATIONS

"[I]nformation is exchanged with the living matrix continuum. This is the continuous network composed of connective tissues, cytoskeletons, and nuclear matrices, and the continuous layers of water adhering to them. Since the living matrix extends into every nook and cranny of the body, it forms a systemic energetic continuum. The overall field of the body, and fields in the environment, affect all of the steps in the regulatory loop. Hence the electromagnetic 'environment' of a hormone-receptor interaction influences and is modified by the interaction... While pathology may manifest as chemical imbalances, the underlying problem is electromagnetic. Hence balance can often be restored by providing the correct or 'healthy' frequency, and entraining the oscillations back to coherence." (p. 135) [emphasis added] This is why the REBsm continually asks the clients to replace the negative with the positive.

16.7.8. GRAVITY AND PHYSICAL AND EMOTIONAL STRUCTURE

According to Ida Rolf (structural integration) the following effects of trauma occur.

"Any trauma to the body is recorded as changes in internal structure... [E]ven slight displacements have cumulative and long-term effects, especially if there is a shift in the way weight is carried (a change in the relation to gravity).... [I]t is possible *all* traumas to the body alter the relation to gravity by causing deviations from the ideal pattern, the form we have inherited to enable us to cope with gravity." [emphasis added]

"The way the body responds to physical trauma applies equally to the response to an emotional mishap or to a chronic psychological state. Psychological attitudes are always represented in body structure. Fear, grief, and anger each have a characteristic pose and pattern of movements...'body language.' An emotional response immediately precipitates contraction of flexor muscles and movement away from structural balance. Once this happens, gravity takes over and pulls the structure downward, making the body shorter... If an individual continues to dramatize an emotional situation, the physical body becomes set into a psychological pattern. Once these changes have taken place, the physical attitude becomes invariable, involuntary. Movements, including respiration, reveal the emotional turmoils. In a balanced body, inspiration involves lengthening of the entire spine, from the sacrum all the way up to the cranium. When movements are restricted, individuals can no longer feel an emotion as an emotion. No longer can they have a natural response to an immediate situation and then get on with their life. Instead, they live, move, and have their being in an attitude. No amount of discussion, thought, or mental suggestion can change the pattern. To escape... the physical tone of the muscles and the structure in relation to gravity must be changed."

"The imbalances resulting from physical or emotional trauma can lead to a whole realm of chronic problems... [G]ravity is a part of the whole that has been given relatively little attention [in therapy]." [emphasis added]

"A physical trauma... can influence the emotional state. A relatively simple accident which nevertheless leaves the body maligned and out of balance can affect the psychological sense of the individual. The kinesthetic body feels inadequate, and the physical structure projects and image of inadequacy." (pp. 160-161) [emphasis added]

Body work and movement therapies can extend range and efficiency of motion, flexibility, resiliency, balance, timing, precision and **emotional integration**.

"Muscular balance is the outward and visible sign that vital communications and energy flows are functioning freely... the flow of body fluids, the flow of neural impulses and the flow of vibrations through the semiconducting tensegrous living matrix. These are the vibrations that convey the information needed for the support system to adapt itself to the way it is being used, and to repair injuries." (p. 166) Thus, to change a chronic emotion, change the way you move, sit, and be.

16.7.9. SOME CONCLUSIONS

""Body shape and patterns of movement simultaneously tell three stories, each relating to the way we experience gravity:"

1. "A evolutionary history, representing [how] our ancestors adapted to live in the gravity field of our planet."
2. "A shorter history of personal traumas and adaptations during our lifetime."
3. "The story of our present emotional state, including the effects of our most recent experiences."

"[A]ny therapy that brings the visible parts of the body into alignment, or that restores flexibility and mobility, will, at the same time, facilitate vital communications and thereby have beneficial effects upon the health of the fascial supporting systems. Once the body has been organized around the vertical, and dynamic movements have become optimized, 'gravity becomes the therapist.'" (pp. 173-174)

"On the basis of what is now known about the roles of electrical, magnetic, elastic, acoustic, thermal, gravitational, and photonic energies in living systems, it appears that there is no single 'life force' or 'healing energy' in living systems. Instead, there are many energetic systems in the living body, and many ways of influencing those systems... [T]he 'living state' and.../'health' are all of these systems both known and unknown, functioning collectively, cooperatively, synergistically... [This involves the study of] the interactions between biological energy fields, structures, and functions." (p. 219) [emphasis added]

"Every system in the body has an accompanying 'peri-' system which we can call collectively the 'surrounding tissues.' You can distinguish between the primary function of a particular system and the functions of the connective tissue system that surrounds and maintains it. The nerves, blood vessels, bones, muscles etc. have this peri- system that helps the system function. These 'peri-' systems have an important role in regeneration and repair (healing) as well as a global communication function in the total system." (pp. 231-233)

"There is an emerging new definition of living matter which incorporates the 'new' physics and chemistry (solid state, semiconduction, quantum mechanics, liquid crystals, and biological coherence). [T]iny amounts of energy at the appropriate frequency can produce profound biological effects...[C]ells maintain their organized society by 'whispering together' in a faint and private language. The 'whispers' travel as both chemical and electromagnetic messages... In the past, we thought the words of the 'language of life' were nerve impulses and molecules, but we now see that there is a deeper layer of communication underlying these familiar processes. Beneath the relatively slow moving action potentials and billiard ball interactions of molecules lies a much faster and subtle realm of interactions. This dimension is subatomic, energetic, electromagnetic and wave-like in character. The chemical messenger ultimately transfers its information electromagnetically. Hence the electromagnetic code is actually primary. Nerve impulses and chemical messengers are contained within the individual whereas energy fields radiate indefinitely into space and therefore effect others who are nearby... The electromagnetic language has two aspects, frequency and intensity... [L]aboratory research is confirming [that] when it comes to triggering healing responses, 'small is powerful,' or 'less is more.' The search for an appropriate essence is in fact a search for compounds with the correct molecular emission spectrum to provide benefit for a particular ailment in a particular patient at a particular time..." (pp. 250-251) [emphasis added]

16.7.10. THE INTELLIGENT BODY ¹

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16.7.10.1. Introduction

In spite of a century of neuroscience and a decade of the brain, we are still unclear about the nature of physiologic consciousness and its relations to learning, memory, intelligence, the subconscious, the unconscious, and intuition.

The matrices within and between cells in the human body, collectively called the *living matrix*, give rise to a primordial and evolutionarily ancient form of intelligence or consciousness that predates the nervous system. ³ This matrix provides a basis for a number of healing and related phenomena that have seemed elusive or mysterious in the past. First, it is the matrix that responds to a wide range of bodywork, energetic and movement therapies that often are said to lack correspondences with conventional biomedicine. These therapies are successful in "jump starting" the healing process, sometimes in medically "incurable" conditions, because they address this whole-body matrix system and aren't limited to neural and hormonal mechanisms.

16.7.10.2. Historical Background: Problems with the Neuron Doctrine.

Much of modern research on consciousness has been based on the 1963 Nobel Prize studies of Sir John Carew Eccles. His model explained how the brain makes myriads of decisions that give rise to the conscious "moment." However, in spite of the major direction he established in neuroscience, Eccles concluded in 1993 that his model could not account for non-physical and transcendent properties of mind: feelings, thoughts, memories, intentions, emotions. ⁴ This was not welcome news to many in the neuroscience community. Eccles suggested that it might be necessary to explore the quantum properties of the neural synapse to locate the ultimate connection between mind and brain. Hence the timeliness of the essay in this issue of *Bridges* [2005, "The possible mediating role of quantum mechanical phenomena in mind-body interactions", Spring, v. 16, #1, pp. 15-20] by Larry Goldberg, exploring the role of quantum mechanical phenomena in consciousness.

16.7.10.3. Neurons as Cells.

In 1961, MIT scientist Francis O. Schmitt, ⁵ the founder of the Neurosciences Research Program, suggested that electrophysiological methods were unlikely to resolve the problems of memory and consciousness. He pointed out the enormous capacity of biopolymers to store information:

Only in giant macromolecular polymers is the diversity possible that is required for the specificity manifested in fundamental life phenomena. A polymer composed of 1 000 monomers of 4 monomer species (e.g., RNA) could have 41000 variants; with 20 monomer species (protein) there could be 20^{1000} variants!

But, where in the organism might we find the giant macromolecular polymers that Schmitt referred to? We know that they are in neurons-but what about other cells and tissues?

In 1999, Stuart Hameroff⁶ reminded us that neurons are cells:

. . . individual neurons are far more complex than simple switches, with enormous capacity for intracellular information processing. The neuron doctrine ignores the fact that neurons are living cells.

While many scientists continued to pursue neural/synaptic mechanisms of consciousness, Hameroff and others began to explore cellular memory, and a number of researchers focused on the microtubule as a potential memory device. Neurons are packed with microtubules, which are polymers of the protein, tubulin, along with other microtubule proteins.

16.7.10.4. The Evolution of Intelligence.

Some philosophers and evolutionary biologists have assumed that primitive organisms such as bacteria and protozoa cannot be conscious. They take the position that a nervous system is needed for consciousness. However, it does not take a rocket scientist to know that intelligence is present in all life, including plants. If you doubt this, look at a flower, and then tell me that plants lack intelligence!

Even the simplest microorganisms sense their environment and respond to it. For example, the most rudimentary of bacteria grow in the direction of nutrients; motile flagellated bacteria propel themselves toward nutrients and oxygen, and away from toxic chemicals. These organisms thus meet the criteria for sentience, which is defined as having sense perception, being conscious.

Hameroff noted that "simple" animals such as paramecia swim gracefully, avoid predators, find food and mates, and have sex, all without a single synapse. In 1951, the British neuroscientist, Sir Charles Sherrington,⁷ said of this: "Of nerve there is no trace. But the cell framework, the cytoskeleton might serve." And in 1999 Hameroff added,

If the cytoskeleton can be so useful in protozoa, what might it be doing in the highly organized cytoskeleton of neurons? Are neurons stupid in comparison with protozoa?

In 1858, Rudolf Virchow, the founder of cellular pathology, pointed out that each of the 50 billion cells in the human body is an "elementary organism." If primordial consciousness is present in microorganisms, that primordial consciousness must be present throughout the human body.

16.7.10.5. Sensation and Action.

In 1973, a classic paper on sensation and movement was published by Jelle Atema in Woods Hole.⁸ Atema pointed out that all of our sensory receptors contain cilia. This opens up the possibility that a locomotor-sensory system is a built-in feature in the body of all animals.

In his paper, Atema admitted that he was unable to specify the nature of the conformational waves being propagated through the microtubules and other microfilaments comprising cilia and flagella-

but at the same time, research half way round the world, in Kiev, Ukraine, was revealing a possible explanation. Davydov⁹ reported a biological basis for the "soliton," the solitary wave, and how it might solve the important riddle of how energy is transferred from the place where it is generated to the places where it is needed.¹⁰

Incidentally, the first qualitative description of a soliton was published in 1834. J. Scott-Russell was watching a boat being drawn through a canal by a pair of horses. He observed a wave that "rolled forward with great velocity, assuming the form of a large solitary elevation, a rounded smooth and well-defined heap of water, which continued its course along the channel apparently without change of form or speed."¹¹ Tidal waves and tsunamis are solitons. Their destructive power arises from their coherence, which makes them very stable and prevents them from dissipating their energy. Atema probably did not know that Valerie Hunt was performing electromyographic studies on dancers showing that movement is possible under conditions in which nerve impulses are not reaching the muscles. Hunt concluded that there is some other mechanism for activating movements besides the classical neuromuscular control system. These studies are reported in her book, Infinite Mind¹²

16.7.10.6. The Next Evolutionary Step: The Extracellular Matrix.

The next step in the understanding of sensory systems involved the extracellular sugar polymer coatings of individual bacteria, viruses, and protozoa. Like cilia and flagella, these "antennas" extended the "reach" of organisms into their environments.

In colonies of bacteria and simple colonial animals, this extracellular "fuzz" took on the properties of mechanical and informational linkages that gave the emergent organisms new and never before realized capabilities. The evolutionary progression to the higher organisms, including humans, involved the development of more and more sophisticated cell assemblies, such as the nervous and hormonal systems. But the higher organisms still rely on the primordial matrix system for fundamental aspects of sensation, information processing, defense, regeneration and movement. Because of its much longer evolutionary history, this matrix system is far more sophisticated than the nervous system. And Schmitt, cited above, realized the enormous potential of matrix biopolymers to store highly specific information, i.e. memories.

In his classic work, Matrix and Matrix Regulation, Alfred Pischinger stated that the smallest unit of life in the vertebrate organism is actually a triad: capillary/matrix/cell.¹³ Hence there is a substantial theoretical and experimental basis for the storage, processing and movement of information and energy within the microscopic internal skeletons of cells of supposedly simple organisms.

Proposition: I suggest that these mechanisms extend beyond the cell, to the extracellular matrix and propose that the primordial sensation-movement system described by Atema exists in humans, and operates independently of the traditional neuromuscular system.

16.7.10.7. Capabilities of The Intelligent Body.

It is suggested here that there is a "consciousness" residing in the cellular and extracellular matrices found throughout the human body. This living matrix is a continuous, global or wholebody system

that predates the nervous and hormonal systems in terms of evolutionary history. It is composed of biopolymers with enormous capacity to store information (Schmitt, cited above). The relationship of the matrix to the nervous system is that the nervous system is actually composed of this primordial system. The matrix reaches every portion of the organism that is reached by nerves, and the matrix also reaches places where nerves and capillaries do not reach.

Where in the catalog of human behavior does this primordial system reveal itself? My introduction to this question came from of Albert Szent-Györgyi ¹⁴

It was at an early date that I began to feel that the wonderful subtlety of biological reactions could not be produced solely by molecules, but had to be produced partly by much smaller and more mobile units, which could hardly be anything else than electrons. The main actors of life had to be electrons whereas the clumsy and unreactive protein molecules had to be the stage on which the drama of life was enacted. Electrons, to be mobile, need a conductor, which led me to the conclusion that proteins have to be electronic conductors.

Toward the end of the 1930's theories began to appear about the submolecular structure of condensed matter. This opened the possibility of electronic mobility in proteins, and thus in 1941, I proposed that proteins may be conductors.

Albert Szent-Györgyi and many others went on to reveal that the primordial protein matrix within and around cells is not composed of conductors, but of remarkable materials called *semiconductors*.

Moreover, much of the living body is composed of highly regular arrays of molecules that are best characterized as semiconducting liquid crystals. Of these materials, British biophysicist Mae Wan Ho 1997 ¹⁵ has stated:

Liquid crystallinity gives organisms their characteristic flexibility, exquisite sensitivity and responsiveness, and optimizes the rapid noiseless intercommunication that enables the organism to function as a coherent coordinated whole.

A number of phenomena demonstrate this responsiveness and noiseless intercommunication. The martial arts provide spectacular examples, in which the practiced master demonstrates an ability to sense and respond to his or her environment with extraordinary speed and precision that clearly transcends neuronal capabilities.

Athletes and other performers also routinely make judgments and sophisticated movements that are far ahead of neurological speed and that are inexplicable in terms of the established neuromuscular control system. For example, research has shown that it is impossible to hit a baseball. There is just not enough time between the instant a pitcher releases a baseball and the moment it crosses the plate for a hitter to spot it, react to it and swing the bat across the plate to meet it. ¹⁶

Some other kind of link between sensation and action must exist and I propose that it is to be found in the primordial matrix consciousness described above. A great baseball hitter, Ted Williams, described his success this way: Study the pitcher intently. Then, when he throws the ball, guess where and when to swing the bat! In other words, rely on intuition.

Sports psychologists distinguish between *proceduralized knowledge*--when your body knows how to do something--and *declarative knowledge*--when your conscious mind knows how to do. ¹⁷ I am suggesting that proceduralized body knowledge is subconscious, residing within the living matrix, whereas declarative knowledge is a property of the nervous system.

These phenomena also reveal themselves in the insights of therapists when they find themselves mentally "directed" to the part of the body or psyche that is causing problems for their clients. When the mind is quiet, so that proceduralized body knowledge is allowed to act as a guide, uncanny insights come forth. A number of therapists are adept at this and have published books and tapes to assist others in harnessing their own powers of intuition and insight. ¹⁸ Sometimes these experiences are associated with a phenomenon I have labeled "somatic recall" in which both therapist and patient simultaneously have vivid visions or other sensory experiences related to a traumatic event that may have happened many years earlier. ¹⁹

Liquid crystallinity gives rise to another property: biological coherence. Most of the tissues in the body are liquid crystals: highly ordered molecular arrays that have properties of both solids and liquids. This is true of the actin and myosin arrays in muscles, the phospholipids in cell membranes and myelin sheathes, collagen in connective tissue, the arrays of microtubules in nerves and sensory receptors, and the DNA. The six feet of DNA packed into every cell in the body, noted by Karl Maret in his accompanying article, [Bridges, 2005, "Seven key challenges facing science," Spring, v. 16, #1, pp. pp.4-9] has to be packed into a nearly crystalline form in order to fit into such a tiny volume. These liquid crystals have an extraordinary and vital property: when they are energized to a certain level of excitation, as by the electric fields present within the body, the molecules begin to vibrate in unison, until they reach a high level of coherence.

Such systems must emit highly coherent, laser-like signals and be exquisitely sensitive to similar signals from the environment. Biological coherence is the subject of extensive research, beginning with the work of Fröhlich and colleagues ²⁰ and continuing with the research of Ho and others. ²¹

16.7.10.8. The Conscious and the Subconscious.

Can the word "consciousness" be used to describe a consciousness that is not of neural origin? Of course it can! Ever since the work of Freud and Jung in Western psychology we have had concepts of the subconscious and unconscious, and their correlates--images, dreams, and flashes of intuition. ²²

In the past, these terms have had little meaning to the physiologist, or cell or molecular biologist. Here I propose that the cellular and extracellular matrix that extends throughout the human body gives rise to a variety of psychological phenomena. I now see the matrix as where a vast amount of subconscious sensory information is stored and processed, an amount of data that would completely overwhelm the capacities of the simple nervous system. This total system is wonderfully described by Tor Nørretranders ²³ in a fascinating book entitled The User Illusion:

Each second, our consciousness reveals to us a tiny fraction of the 11 million bits of information our senses pass on to our brains. Most of the information from our senses goes to our unconscious. Trust your hunches and intuitions--they are closer to reality than your perceived reality, as they are based on far more information.

Access to this system is via intuition that enables therapists and athletes and dancers to reach new and transcendent levels of accomplishment. I see intuition as something that emerges from the living matrix after a vast amount of subliminal information has been stored and evaluated for its deeper meanings.

I now view intuition as an emergent property of a very sophisticated semiconducting liquid crystalline matrix that is capable of storing and processing a vast amount of subliminal or nonneural information. The sophistication of my computer, with its software programs and memory and information storage capacities corresponds to the sophistication of neural consciousness. But these capabilities pale to insignificance in comparison with the evolutionary ancient solid-state subconscious system that is expressed within every cell and sinew of my body and that operates continuously to analyze the world around me.

16.7.10.9. Microgenesis.

To understand how information stored and processed by this subconscious matrix system reaches consciousness, consider the theory of mind developed by Jason W. Brown²⁴ from clinical observations of patients with various aphasic-disorders of perception and action. Each aphasia provided Brown with a clue about a stage in the normal unfoldment of the conscious present. When these clues were put together, the result was the description of a process that Brown calls microgenesis. It is the "rapidly flickering recapitulation of an individual's entire past as the content in which each moment of the 'now' is experienced" (Deane Juhan).²⁵

An aspect of this model is that traumatic memories and personality structure continuously select or sculpt our perceptions of the world on a moment-by-moment basis, before we become conscious of "the world out there." The existence of this system helps us understand how new methods of energy psychology are able to resolve post-traumatic stress without the lengthy efforts of trying to recall and recapitulate the moment of trauma, as has been done in traditional psychotherapeutic approaches.

From the perspective being developed in this article, I see microgenesis as a means of accessing the status of the entire body, not just the brain. One way this can happen is by the use of the coherent emissions from the various liquid crystals within the matrix. My recent book³ is an attempt to elucidate the relationship between quantum coherence and conscious experience.²² Briefly, the theory is that the coherent "laser beam" of holographic consciousness arises within the highly ordered semiconducting liquid crystals of the living matrix.

These internal Fröhlich oscillations reverberate within the organism, repeatedly referencing the status of the body. Each subconscious "sweep" of the body references: 1) the inner boundary of the body, 2) the tensions and positions of all body parts, 3) all sensations, both liminal and subliminal, 4) the entire traumatic history, 5) all cellular memories, and 6) all connective tissue memories.

And each "sweep" of the body has the possibility of erasing the traumatic history. Establishing the conditions for this to take place is being accomplished by methods being developed in the field of energy psychology. Finally, each "sweep" of the body reaches into every part of the body, including each part of the nervous system. To the extent that the nervous system is an integral part of the

matrix, and vice versa, there is no need to search for a specific point of connection between them: they are connected everywhere. In that regard, neurosurgeon Karl Pribram²⁶ was unable to find the laser he needed to complete his holographic model of the brain, because the "laser" was not in the brain; it is throughout the body. I propose that holographic memory and microgenesis are whole-body phenomena that cooperate to generate the conscious present.

Since the primary channels of this microgenetic holographic memory system are the acupuncture meridians, it is not surprising that many energy psychology methods involve tapping on key points of the meridian system.

16.7.10.10. Where is Consciousness?

Many years ago body workers told me they were convinced that consciousness is in the body and not in the brain. This came as a surprise, for I had been taught that consciousness is a process that takes place only in the brain. Over the years this new perspective of body consciousness became compelling. Key research was done by Candace Pert and her colleagues, and is summarized in Your Body is Your Subconscious Mind.²⁷ Decades of research on neurochemistry showed Pert that the molecules of emotion, and their receptors, can be found everywhere in the body, on every kind of cell.²⁸ The so-called "neuropeptides" and their receptors were not, as previously thought, confined to the nervous system. Mind, as correlated with "neurochemistry," had proven to be a whole-body phenomenon. Your body is, at least, a crucial component of your subconscious mind!

In my opinion the therapists who touch real living human bodies (in contrast to those who poke electrodes into cells, or who study individual molecules) obtain vital clues about some of the questions that can never be answered from the reductionist perspective alone. A new understanding of life is emerging from the synthesis of reductionist and whole-person perspectives. At a recent conference on energy psychology,²⁹ a leading practitioner, Belleruth Naparstek, concluded: *Post-traumatic stress is not mental, it is biophysical. Post-traumatic stress is not a mental health problem. They (the patients) may look mentally ill, but they are not. we have spent years looking at this incorrectly.*

I believe what Dr. Naparstek is referring to stems from psychologists not understanding the reality of the body, and the unsuccessful search for mind limited to the brain. We have searched the brain and nervous system because we know how to study their electrical properties. It now is time to develop ways of connecting our instruments directly to the living matrix, so we can explore more subtle realms of sensation, memory and consciousness. The way to do this emerges from the research on electronic biology developed by Albert Szent Györgyi. As with most new ideas, the scientific community rejected his concepts.

The time has come, however, to use these tools to help determine what consciousness and intelligence really are.

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16.8. THE CEREBELLUM AND INFORMATION PROCESSING of Bergmann (1999), Leiner and Leiner, Schumahmann

The Publisher's description of the 1997 volume edited by Schumahmann, The Cerebellum and Cognition, reads "Cerebellar function has traditionally been understood as being confined to the control of voluntary movement. Recent research revises this narrow view and suggests that the cerebellum is critically involved in a number of nonmotor behaviors and cognitive operations. The Cerebellum and Cognition is a comprehensive work that defines this emerging field of investigation into the nature and extent of the cerebellar involvement in nonmotor processing, including thought, language, memory, and mood. Authoritative and in-depth discussions by a preeminent group of authors who have helped shape this field of inquiry..." Some relevant chapter titles are:

- D.J. Reis 'Autonomic and Vascular Regulation.'
- M. Molinari, M.G. Leggio, and M.C. Silveri 'Verbal Fluency and Agrammatism.'
- J.D. Schmahmann and J.C. Sherman 'Cerebellar Cognitive Affective Syndrome.'
- J.M. Bower 'Control of Sensory Data Acquisition.'
- H.C. Leiner and A.L. Leiner 'How Fibers Subserve Computing Capabilities: Similarities between Brains and Machines.'
- J.R. Bloedel and V. Bracha, 'Duality of Cerebellar Motor and Cognitive Functions.'
- J.D. Schmahmann 'Therapeutic and Research Implications.'

16.8.1. THE CEREBELLUM: THE TREASURE AT THE BOTTOM OF THE BRAIN by Henrietta Leiner and Alan Leiner 1997a (quoted in it's entirety)

"One of the most impressive parts of the human brain, named the cerebellum, has been underestimated for centuries. Located at the lower back of the brain, it is a fist-sized structure whose function is now being reappraised. Formerly this structure was thought to have only a motor function, which it performed by helping other motor regions of the brain to do their work effectively. But during the past decade [1987-] a broader view of its function has emerged as a result of new research, and now the cerebellum is regarded as a structure that can help not only motor but also nonmotor regions to do their work effectively. In fact, the cerebellum has been

compared to a powerful computer, capable of making contributions both to the motor dexterity and to the mental dexterity of humans, both of which are required for the emergence of fluent human language."

HUMAN CEREBELLUM, SHOWING THE DENTATE NUCLEUS AT ITS CORE

The lateral part of the cerebellum includes not only its cortex (shown on the left) but also its dentate nucleus (shown on the right)

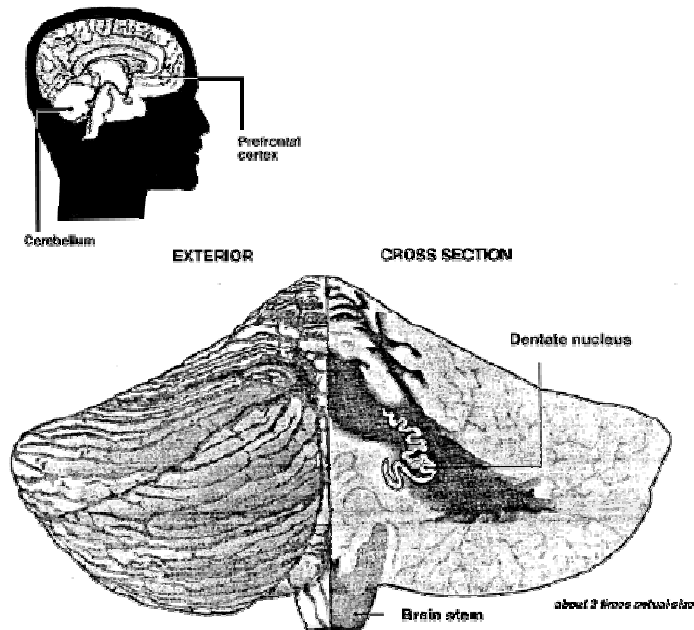


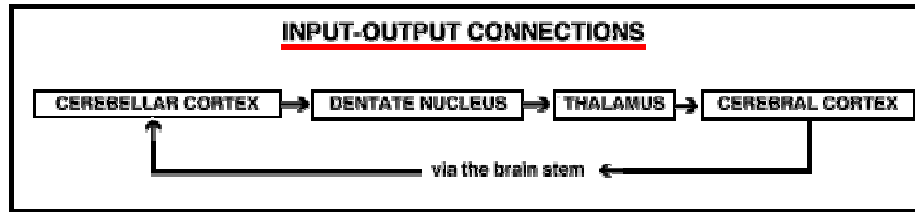
Figure 16.6.

"This powerful mechanism at the bottom of the brain, which every person inherits as a birthright, is immature at birth but develops through childhood and adolescence, reaching its full structural growth by the 15th to 20th year of life. Perhaps the reason why it has traditionally been underestimated is its low-level location in the brain, which contrasts with the high-level location of the structures that are thought to subservise higher mental functions. Such locations in the brain become irrelevant, however, when a structure is regarded as a computer because a computer's processing power depends not on where it is but on what it contains and to what it is connected."

"Judged by what it contains and by its external connections, the human cerebellum is an enormously impressive mechanism. First of all, it contains more nerve cells (neurons) than all the rest of the brain combined. Second, it is a more rapidly acting mechanism than any other part of the brain, and therefore it can process quickly whatever information it receives from other parts of the brain. Third, it receives an enormous amount of information from the highest level of the human brain (the cerebral cortex), which is connected to the human cerebellum by approximately 40 million nerve fibers. To appreciate what a torrent of information these 40 million fibers can send down from the cerebral cortex to the cerebellum, a comparison can be made with the optic fibers in the human brain. The optic tract contains approximately one million nerve fibers, which transmit to the brain the visual information that a human receives via the eyes. Forty times that much information can be sent from the cerebral cortex down to the cerebellum, including information

from sensory areas of the cerebral cortex, from motor areas, from cognitive areas, from language areas, and even from areas involved in emotional functions." [emphasis added]

- The lateral cortex of the cerebellum receives input from the cerebral cortex and sends output to the dentate nucleus, which sends output (via the thalamus) to the cerebral cortex



- Through these input-output pathways, the cortex of the cerebellum can receive information from the cerebral cortex for processing, and can send the results of this processing to the dentate nucleus, for transmission to different areas of the cerebral cortex, including cognitive areas.

Figure 16.7.

"As this torrent of information continues to pour into the cerebellum from many other parts of the brain, and as the cerebellum continues to process this information within its neural mechanism, a flow of output information is produced by it which it can send to various other regions of the brain, telling them what to do and when to do it. How can the cerebellum convey such messages? A clue is provided by its internal structure and its output connections, which bear a remarkable resemblance to the design that is employed in organizing modern computing machines."

16.8.1.1. RESEMBLANCE TO COMPUTING MACHINES

"In computing machines the processing of information is accomplished by both the hardware in the system (its circuitry) and by the software (the messages transmitted between the various parts of its circuitry). Together the hardware and software can produce a versatile information-processing system, capable of performing a wide variety of functions, including motor, sensory, cognitive, and linguistic ones. Such versatility of function is achieved by organizing the computer hardware in the following way: The basic components are assembled into modular packages that contain similar circuitry, and large numbers of such similar modules are organized into parallel processing networks. This structural organization is exemplified also in the cerebellum: It consists of longitudinal modules containing similar neural circuits, which are arrayed in parallel zones throughout the entire extent of the structure." [emphasis added]

SEGREGATED CHANNELS OF COMMUNICATION

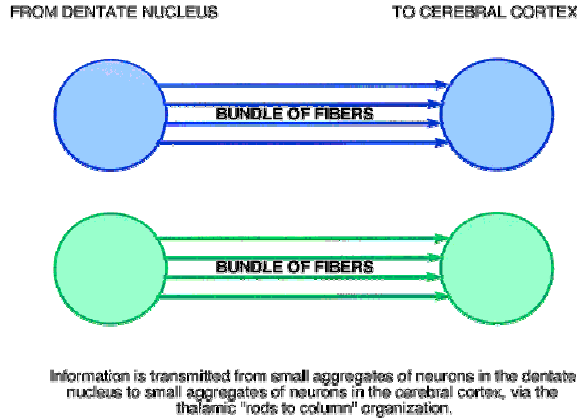


Figure 16.8.

"On the basis of this known cerebellar 'hardware,' it is possible to investigate the 'software' capabilities of such an organization of modules. In investigating the part of the cerebellum that is greatly enlarged in the human brain, investigators found that each module in this part of the cerebellum (the lateral part) is able to communicate with the cerebral cortex by sending out signals over a segregated bundle of nerve fibers. This is a particularly powerful way of communicating complex information. It is exemplified also in computing machines, where the 'fibers' (i.e., the wires connecting the modules) also are organized into segregated bundles. The benefits of such bundling of fibers are linguistic; such organization enables the cerebellum to communicate with the cerebral cortex at a high level of discourse, by using internal languages that are capable of conveying complex information about what to do and when to do it." [emphasis added]

EXAMPLE OF NEURAL "SYMBOLS" TRANSMITTED BY A FASCICLE

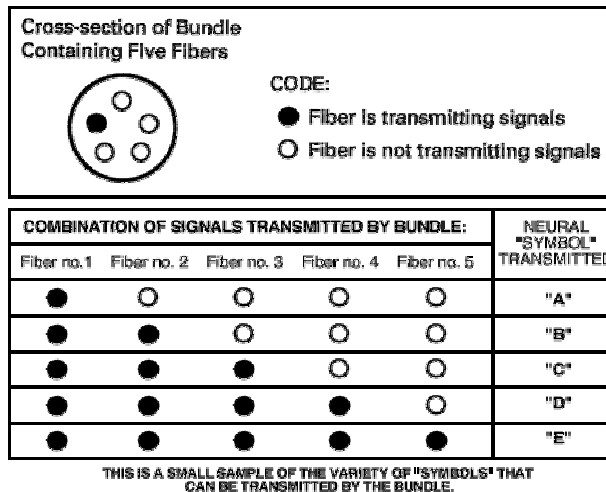


Figure 16.9.

16.8.1.2. FUNCTIONS OF THE CEREBELLUM

"Given that the cerebellum seems well organized to convey complex information to many other regions of the brain, where does it actually send this information? Each module of the cerebellum seems to be uniquely connected, both through its input and output connections, with different regions of the brain. Modules in the middle of the cerebellum (in the medial part) receive different input and send information to different output targets than do the modules in the lateral part of the cerebellum. Despite such differences in input and output, however, the circuitry within each module seems to be similar to that in every other module. For this reason, the basic processing that every module can perform on the incoming information would seem to be similar, no matter whether this incoming information represents motor, sensory, cognitive, linguistic, or any other kind of information."

"What does this basic processing do? More specifically, what computations are performed by the similar cerebellar circuits in each module, and to what use are these computations put when the results are sent to the different target structures in the other regions of the brain? Many theories about such cerebellar functions are under investigation, but definitive answers are not yet available. They await further research."

"Although many of these theories are considered controversial at present [1997], it seems possible that each of them may be at least partially correct and that the present controversies can therefore be reconciled in the future. The present [1997] proposals encompass not only the traditional view that the cerebellum is involved in skilled motor performance but also the broader view that it is involved in skilled mental performance, and is also involved in various sensory functions including sensory acquisition, discrimination, tracking and prediction. A recent theory that is broad enough to encompass all of these motor, mental, and sensory functions has proposed that the cerebellum does the following basic processing: It makes predictions (based on prior experience or learning) about the internal conditions that are needed to perform a sequence of tasks in other regions of the brain, and it sets up such internal conditions in those regions automatically, thus preparing those regions for the optimal performance of the tasks. By doing this, the powerful and versatile computing capabilities of the cerebellum would be used for providing automatic help to various other regions of the brain, helping them to do their work better." [emphasis added]

16.8.1.3. THE ADVANTAGES OF AUTOMATION

"Experimental evidence has shown that the cerebellum is involved in the process by which novel motor tasks can, after some practice, be performed automatically. Through such automation, the performance can be improved: Sequences of movements can be made with greater speed, greater accuracy, and less effort. The cerebellum also is known to be involved in the mental rehearsal of motor tasks, which also can improve performance and make it more skilled." [emphasis added]

"Because the cerebellum is connected to regions of the brain that perform not only motor but also mental and sensory tasks, it can automatize not only motor but also mental and sensory skills in the human brain. As with motor skills, several advantages accrue from learning to perform the other skills automatically, without conscious attention to detail." [emphasis added]

"The skills involved in human communication, for example, require both motor and mental activity: the motor activity of speech or gesture, and the mental activity that formulates what is to be said. In the course of learning these skills, an individual's performance can be improved incrementally through practice so that the skills eventually can be performed without conscious attention to detail. For example, in recalling words stored in the memory, the activity can be performed without conscious attention to the details of how the words are selected by the brain during the retrieval process."

"To the extent that an individual can perform some mental activities without conscious attention to detail, the conscious part of the brain is freed to attend to other mental activities, thus enlarging its cognitive scope. Such enlargement of human capabilities is attributable in no small part to the enlarged human cerebellum and its contribution to the automation of mental activities, which appears to have been a prerequisite for the emergence of human language. Because such language confers a unique and inestimable advantage on humans, the cerebellum can be regarded as an underestimated treasure submerged at the bottom of the brain."

The above approach is a major reason Educational Kinesiology says "Movement is the door to learning" and movement will facilitate integration of personal discoveries in psychotherapy. REBsm involves cross lateral movements (squeezing and rocking (Module 3d) and blinking (Module 3e) as well as various head and eye movements (Module 6) all done while the client is tuned into the issue.

17. DEEP DIAPHRAGMATIC BREATHING THROUGH THE NOSE

17.1. BRAIN BREATHING (quoted in its entirety without pictures)

By Dina Ingber *Science Digest* June 1981, pp. 72, 74-75, 110-111. *Dina Ingber, a science writer and flutist, learned new ways of breathing on a visit to the Himalayan Institute for Yogic research. Changing the way we breathe can change the way our brain works--and give us conscious control over our blood pressure, immune system and mental health.*

"We gasp in pain, sigh in relief, hold our breath in anticipation. We feel breathless with excitement or inspired by an idea. In each case, the way we feel--not just physically but emotionally as well--is directly linked to the way we breathe. We have long been aware of this link, as our language shows, and yet we have almost totally ignored it. For some reason, breathing has always been taken for granted by Western science. Keep breathing and you live; stop breathing and you die. It's as simple as that. Or is it?"

"Research has shown that breathing is really a very complex activity that can have a direct effect on many bodily functions. The pattern of our breathing--whether we breathe rapidly or slowly, deeply or shallowly, even whether we breathe through the left or right nostril---could well determine our susceptibility to illness, the strength of our hearts and the depths of our depressions."

"Breathing, say some researchers, might be the missing link between the voluntary and involuntary functions of the brain. Although it is regulated by the nervous system in the same way as heartbeat, blood flow and other autonomic functions, breathing may be the only one of these functions that can be consciously altered. And by learning to control our breathing, we may be able to control other functions--brain waves, hormonal secretions, metabolism--of importance"

"Breathing is the way in which we transport oxygen from the air to our body's cells, where it is used to burn carbohydrates, proteins and fats, thus releasing the energy that keeps us going. It is also the way in which we rid our bodies of a by-product of the combustion process, carbon dioxide."

17.1.1. A QUICK TOUR OF THE NOSE

"No discussion of breathing should begin without a quick tour of the nose. It is the narrowest entrance to the respiratory system and presents the most resistance to air flow. In fact, it requires more than twice as much work to pull air through the nose than through the mouth. And since we breathe an average of 16 times a minute, that's quite a bit of work. But the extra effort is worth it because the nose performs 30 distinct and important functions. Among others: it filters the air to remove dirt; it moisturizes, warms and directs the airflow; it registers smell and creates mucus."

"The intake area of the nose, called the vestibule, consists of two wings. or alae, made of flexible cartilage. The wings are divided by the septum. Inside the nose are turbinates, bulges that create an intricate series of channels through which air can circulate, picking up moisture and heat; cold or dry air would irritate the lungs. This temperature and moisture control, in fact, accounts for differences in nasal shapes among the various races. Long noses are an adaptation to cold and dry

climates because they provide more room for heating and moisturizing to take place. Short noses serve well enough in the tropics where such functions are unnecessary because of the weather."

"Lining the nose is mucous membrane on which millions of tiny hairs called cilia grow. The hairs and the sticky membrane trap dust before it reaches the lungs."

"Under the mucous membrane is a spongy substance called erectile tissue, which can fill with blood. The same kind of tissue is found in the sexual organs, and when they fill with blood during arousal, the tissue in the nose will sometimes do the same in a kind of sympathetic reaction. The result is a phenomenon known as "honeymoon nose," characterized by chronically clogged nasal passages. This link between the nose and the sex organs has been noted by many scientists, including Sigmund Freud."

"Research has shown that menstrual cramps are often related to an inflammation of certain areas of the nasal lining; if these areas are anesthetized, the cramps disappear."

"Air enters the front of the nose, the vestibule, which is encased in a pair of alae, flexible cartilage wings. Inside the nose, bulging bones called turbinates divide the nasal cavity into several chambers. The hard palate forms their floor. Air whirls around the chamber until warm and wet enough to flow to the lungs."

"We alternate between the left and the right nostrils during normal breathing. A number of studies have confirmed this 'nasal cycle,' in which we shift sides about every two and a half to four hours. The older the breather, the longer the duration of the cycle, apparently; in some people there may be eight hours between shifts."

"As one nostril becomes more open, its mucous glands increase their secretion. The opposite nostril becomes more clogged as its erectile tissue swells with blood and releases mucus into the nostril. As the cycle continues, the open nostril becomes filled with mucus, and its partner begins to open up as its swollen tissue deflates."

"We can easily test this shift in nasal openness by breathing through the nose onto a small mirror and seeing the difference in size of the two misted areas. Or if you blow through one nostril while holding the other closed, you will hear a difference in pitch. The obstructed side has the higher pitch."

"Dr. J. N. Riga, an ear, nose and throat specialist from Bucharest, Rumania, found that out of the nearly 400 patients who were suffering from nasal obstructions due to deviations of the nasal septum, those who breathed more through the left nostril also suffered much more from stress-related diseases (89 percent of left-nostril breathers versus 29 percent of right-nostril breathers). When the nasal deformity was corrected by surgery, the stress-related problems abated."

"An American heart specialist has prescribed deep breathing through alternate nostrils to patients with angina pectoris (a symptom of heart disease characterized by sharp pains in the chest) and has found marked improvement." (see section 17.7.5.)

"Yogis have long asserted that proper breathing is the key to mental and physical well-being and for thousands of years have emphasized the alternate-nostril method. Ancient yogic texts claim that breathing through different sides of the nose affects our behavior."

"Contrary to Riga, they believe that the right nostril should be used during active, aggressive enterprises and the left side for quieter, more passive endeavors. This bears a striking resemblance to current theories about the functions of the right and left brain. A ... study made by Raymond Klein and Roseanne Armitage, of the department of psychology at Dalhousie University in Nova Scotia found that performance of tasks involving right- and left-brain activity comes in cycles. Within a period of 90 to 100 minutes, subjects did well on right-brain-related projects and then shifted to doing well on left-brain-related projects. (see section 17.7.4.) This fits in with current hypotheses that our whole system functions in alternating active and passive cycles. In other words, the way we breathe through our nose could be directly linked to the way our brain functions. Are the yogis right? If we change our breathing pattern, can we also change our entire physiological and psychological balance?"

"Scientists at the Himalayan Institute, a yogic research center in Pennsylvania, ...investigate[ed 1981] this theory. They have marshaled several studies that show that a number of factors affect the nasal cycle. The first is posture. When you lie on your side, your lower nostril congests while the upper one opens. A second factor is pressure. Put your armpit on one side, and the nostril on the other side will open. The third and perhaps the most important factor is emotion. Many people tend to hold their breath when they concentrate, their breathing is shallow and rapid when they're upset, and they breathe deeply and evenly when at rest."

"But in order to understand shallow or improper breathing and its implications, it is important to understand how the entire respiratory process works."

"Air is inhaled (preferably warmed through the nose) into a series of airways that break off into smaller and smaller branches. The first airway is called the trachea, or windpipe. This smooth, tube-like structure, about three-quarters of an inch in diameter in the adult, begins just below the Adam's apple and is enclosed by 16 to 20 U-shaped rings of cartilage for its protection. The trachea splits into two smaller tubes called bronchi. These bronchi in turn break into tinier and tinier branches within the lungs, terminating in the smallest, called bronchioles, which end in a series of tiny air sacs called alveoli. The alveoli are so small they cannot be seen by the naked eye: there are about 300 million of them in the lungs, and if laid out flat they would cover an area greater than the average one-bedroom apartment. They are of utmost importance because it is in the alveoli that the oxygen-carbon dioxide exchange takes place."

"From these bubble like structures, whose walls are only one cell thick, the oxygen passes into surrounding blood vessels, and carbon dioxide is passed into the lungs to be expelled. Once a molecule of oxygen gets into the bloodstream, it hitches a ride on a hemoglobin molecule within a red blood cell and is transported through the body. The oxygen-rich blood leaving the lungs is pumped through the arteries by the left side of the heart. As the oxygenated blood approaches the cells along its route, it moves through increasingly smaller vessels until it is finally squeezed through tiny capillaries, from which oxygen passes from the blood into the surrounding cells by osmosis. Waste carbon dioxide is passed from these cells as well, turning the blood from bright red to almost blue. This bluish blood is then transported back through the veins to the right side of the

heart and winds up back in the lungs, where again carbon dioxide leaves, oxygen enters and the cycle continues."

17.1.2. SMOKE DAMAGE

"Of course, many things can go wrong. Damage to the alveoli is one of the most common problems. Smoking cigarettes causes the lining of the alveoli to break down; the many small bubbles become one large pocket. This reduces the surface area that comes into contact with the capillaries, thus reducing the amount of oxygen that can be taken in during a single breath. Called emphysema, this condition is characterized by shortness of breath in extreme cases. The victim can never seem to get enough oxygen into his system."

"Some gases in the environment cause problems. Carbon monoxide, which appears in high concentrations in both cigarette smoke and automobile exhaust fumes, has a much stronger affinity for hemoglobin than oxygen does. It can therefore latch onto hemoglobin molecule and crowd the oxygen out. We call this internal action involving the transfer of gases within the body *respiration*. But the mechanical action that triggers respiration, the actual driving force behind this essential process, is breathing."

"The point of breathing is to pull air into the lungs, where gas transfer takes place, and then to expel it back out into the atmosphere. But we don't consciously pull air in. We expand the chest cavity, creating a suction and pulling air through the upper airways and into the lungs."

"At rest, the chest cavity can be expanded in several ways. The rib cage can be pulled outward (thoracic, or chest, breathing.) The shoulders can be pushed upward (clavicular or shoulder breathing). The muscular floor of the chest cavity can be pulled downward (diaphragmatic, or belly, breathing). Everyone uses different combinations of these breathing techniques, but research has shown that only one of them is truly efficient: diaphragmatic breathing. Any of the others uses significantly more energy to take in oxygen and expel carbon dioxide."

"The diaphragm is perhaps the most-talked-about unit in the breathing process these days [1981]. This dome shaped sheet of muscle separates the chest cavity from the abdominal cavity. It runs horizontally across the torso, connected to the lower ribs. During inhalation, the dome of the diaphragm moves down, creating a partial vacuum, thus expanding the lungs. At the same time, the abdominal musculature relaxes and protrudes outward."

"This method of breathing is healthiest for several reasons, according to Dr. Alan Hymes, a surgeon on the staff of the Himalayan Institute. Because of gravity, the distribution of blood within the lungs favors the lower areas. With diaphragmatic breathing, more air is drawn to these areas, thus efficiently mixing blood and oxygen. Diaphragmatic breathing is also the easiest and involves the least expenditure of energy."

"In chest breathing, the air is drawn to the upper area of the lungs, while much of the blood remains in the lower portions and is not mixed with the air as well as it is in diaphragmatic breathing. Breathers who are primarily thoracic take more frequent breaths than diaphragmatic breathers."

"Despite the fact that diaphragmatic breathing is obviously the most efficient method most of us fail to use it. Healthy infants and young children know how to breathe properly, but cultural attitudes move our healthy patterns toward chest breathing, since protrusion of the abdomen is not considered beautiful."

17.1.3. HOLDING OUR BREATH

"Like nasal breathing, diaphragmatic breathing is thought to have a link to the emotions. Dr. Alexander Lowen a student of the psychiatrist Wilhelm Reich, says that 'the depth of respiration affects the intensity of feelings.' By holding the breath, feelings can be reduced or deadened, he says. That's why we tend to hold our breath in times of stress. Through the use of proper exercises to relax the muscles and allow for proper breathing, Lowen thinks pent-up emotions can be released and dealt with. He therefore uses breathing exercises as part of psychotherapy. But even without therapy, the body sometimes automatically releases tension by releasing breath in the form of a sigh, a nervous laugh or a groan."

"We are all familiar with the instructions given to a hysterical child: 'Calm down. Just take a few deep breaths and calm down.'"

"The use of breathing exercises to help one calm down is becoming widely accepted. Dr. Phillip Nuernberger who serves as a stress-management consultant for corporations, has run several tests on the use of breathing techniques for relaxation. He taught one group proper breathing techniques and used another group for comparison. The trained group consistently scored better on standard psychological tests and lower on the so-called neuroticism scale."

"But how is it that breathing style is linked to the emotions, and why does one trigger the other?"

"In two independent studies [ca 1981] from the Langley Porter Neuropsychiatric Institute of the University of California; J V. Hardt and B. Timmons show a link between breathing and brain waves. They found more alpha waves, which are known to appear when people are relaxed during deep breathing, and they found fewer when people were engaged in fast, shallow breathing. The alpha waves correlated better with abdominal breathing than they did with thoracic breathing."

"Dr. Poul Stoksted, a Danish researcher believes that the nasal cycle is controlled by a nerve center called the stellate ganglion at the base of the neck. He tested his theory by blocking and unblocking nerve transmission through the ganglion and watching the nasal cycle stop and start its opening and closing of the nostrils. Stoksted believes that these nerves are ultimately triggered by the hypothalamus, the part of the brain that regulates autonomic functions such as body temperature blood pressure, heartbeat and the awareness of pleasure and pain. If breathing and pleasure derive from the same source, perhaps one can trigger the other."

"The autonomic (self-controlling) nervous system is divided into two branches: parasympathetic and sympathetic. The former is involved in controlling resting activities--the slowing of the heart rate and metabolism--while the latter serves to speed them up. Whenever we are under physical or emotional stress the body gears up in anticipation, triggering the sympathetic branch and causing our heart to beat faster and our breathing to quicken. This has become known as the fight-or-flight response. Many researchers claim that this physiological response, which is linked to the emotions,

can be controlled if a person can learn to relax. Dr. Herbert Benson, of Harvard Medical School, discusses just such an idea in the Relaxation Response. He states that proper breathing is an essential part of relaxation, in that it can be used to control responses once thought to be beyond conscious control."

"When you inhale, sympathetic tone increases, according to research from the Himalayan Institute. By consciously controlling breathing--both left- and right-nostril breathing and the rate of inhaling and exhaling--you can slow down or speed up activity in your limbic system that causes changes in moods and bodily functions."

"Says Dr. Rudolph Ballentine of the Himalayan Institute, 'From our research and what we can deduce from other people's research, breathing is directly related in a very strategic way to the functioning of the internal organs, the emotions and the mind. If that is true, and if you take into consideration that breathing can be voluntarily controlled, then just think of the potential of using breathing as a way of correcting certain psychological and physiological problems. We might even be able to study a person's breathing patterns and predict his *susceptibility* to disease, then correct the pathology before it ever surfaces.'"

17.2. OXYGEN THERAPIES

Healthways Newsletter, 1992, April, 155 Avenida Del Mar, San Clemente., CA 92672

"Interest in the west toward oxygen therapies is growing rapidly as people discover that the human body functions well in an oxygen rich environment. Many studies have shown that many kinds of cancer and infectious agents thrive on an oxygen deficient environment, and when additional oxygen is introduced, these pathogens are often destroyed."

"This marvelous therapeutic value of oxygen is quite understandable when we consider that oxygen is at the heart of our metabolism. It is the only element that we need to collect every minute of the day. If we go just a few minutes without oxygen, we die..."

"...[W]e were given lungs for a purpose, to collect oxygen. If we allow our lungs to become weak and learn poor breathing habits, we will soon find that we are only collecting 90% or 95% of the oxygen we need. This puts our blood in an oxygen deficient state, and weakens all functions of the body including energy level, metabolism, immune competence, and clear thinking. (The brain consumes almost 1/3 of the total energy of the body.)"

"If we inhale deeply and exhale fully, we are filling our lungs with oxygen, and then fully expelling carbon dioxide and other waste products. We are doing much more. We are exercising the lungs. We are squeezing out excess fluids from the lung tissue and promoting blood circulation to rebuild and strengthen the oxygen exchange surfaces. Thus the result of breathing activities is not just more oxygen while doing the deep breathing, but also healthier lungs for more efficient oxygen collection all the time."

"The benefits of a regular program of deep breathing activities go on and on:

- ∞ A regular program of deep breathing conditions us to breathe more deeply all the time, ensuring increased oxygenation of the blood around the clock.

- ∞ Deep breathing activities reduce stress, another dangerous side effect of a busy life. Reduced stress also contributes to clearer thinking, stronger immune response and better overall health.
- ∞ Deep breathing activities strengthen concentration, giving us more power over our lives and more ability to create our dreams."

"And there are even more benefits according to the Chinese who have been practicing and teaching advanced breathing activities for thousands of years:

- ∞ Deep abdominal breathing strengthens Qi [pronounced Chee, their term for vital energy or the life force], which appears to go beyond just oxygenating blood.
- ∞ Deep abdominal breathing while focusing attention of the abdomen causes Qi to circulate throughout the body, purifying and strengthening the kidneys, brain, and bone marrow.
- ∞ Focusing attention of this movement of Qi increases our sensitivity and will power, and allows us to gain the ability to control the flow of this Qi."

"...Oxygenating the blood has tremendous health benefits and is best accomplished by practicing deep breathing skills. Paying for products or procedures that put oxygen into you is a bit like paying someone to implant spaghetti directly into your small intestines."

"Starting today, spend ten minutes per day in a quiet place practicing slow deep breathing. Remember to exhale completely and keep your concentration focused on your abdomen. You will immediately have more energy, clear thinking, stronger immune system, and greater endurance. And every day you continue to practice, you will become a more powerful being, happier and more aware of your purpose."

17.3. THE ART OF BREATHING

by Justine Toms New Dimensions, Winter, 1996, pp. 14-16 (quoted in its entirety)

"The breath is always with us. We can think of it as a portable altar--a place to provide nourishment for the soul and calm for the restless mind. The subject of breathing has come up repeatedly with a diversity of guests in recent New Dimensions Radio interviews. When such themes arise so spontaneously, persistently knocking at the gate of our consciousness, it feels like time to stop and pay attention."

"This is not as easy as one might suppose. As I begin to give my own breathing more attention, I notice the surprising fact that I hold my breath a lot, and often my breathing is shallow. Many of our guests have pointed out that the breath is a powerful helpmate to relieve stress and support a more healthy body. But beyond its health benefits, I'm discovering that the breath, when used correctly, can positively affect our spiritual well-being as well."

"Dan Millman, author of The Laws of Spirit, describes the relationship of the breath to being in balance in our lives. He tells us, 'To be in balance, it's essential to have the breath in balance. When we're angry, the exhalation tends to be stronger than the inhalation. When we're sad, the inhalation tends to be stronger than the exhalation. The breath is out of balance. When we're feeling fear, we don't breathe much at all.'"

"Bringing the breath back into balance is a practical discipline. It helps bring our life back into balance, to express whatever we're feeling more effectively. It's certainly one of those principles of life that we need to pay attention to."

"When someone asks me, 'Dan, how do you breathe?' I recommend, 'In and out.' That's facetious, of course! But breathing is the link between the mind and emotions in the body. It's one of the fundamental practices of life."

"Iyanla Vanzant, a former defense attorney, Yoruba priestess, and the author of The Value in the Valley: A Black Woman's Guide Through Life's Dilemmas, agrees with Millman that we must learn to breathe consciously: 'Most of us don't realize that the key to stillness is breath. When you're sleeping, your breath is regulated. There's a steady flow in, there's a steady flow out, and the connection to the higher realms, to the spiritual realms, is very, very strong.'"

"When you're awake, you're talking, you're chewing, you're laughing. And the minute you go into fear, you stop breathing. But when you sleep, the spirit has an opportunity. So the first connection to getting still is to learn how to breathe, and to breathe consciously--to become conscious of how you inhale, how you exhale; the rhythm of your body, the pulsating of your heart--because that is life."

"Life is not whether you drive a Beemer, or whether you pay the rent on time. That's not life. Life is just a state of being--not doing but being. That state of being is enhanced and intensified through breath. So in order to get still, we've got to learn how to breathe ..."

"We're not taught how to be gentle without ourselves. We're usually so harsh and cruel and abrupt with ourselves. We want it all, now. We don't realize that life is a process, and it takes time. The same way it takes nine months to incubate a baby in the womb, it takes forty days to incubate a new idea in your brain, forty days of consistent practice to incubate a new idea in your brain."

"I asked Vanzant why forty days; what makes that number so magical? She said, 'Forty days is the foundation of life. It rained forty days, and it rained forty nights. The number four represents all of the natural elements--north, east, south and west; air, water, fire and earth. And the zero--the symbol of infinity, the alpha and the omega--is a symbol of God. In order to build a new foundation, you need God--that's your forty.'"

"Vanzant emphasizes the need to be consistent in developing a breathing practice. She explains, 'It will create a new pattern. Even in your body, the skin you have today is not the same skin that you had forty-five days ago, because you're constantly standing and constantly growing. And everything needs a foundation.'"

"If you can just do something simple for forty days, then that change is solid. Every day for forty days, get up in the morning and take five deep breaths before you brush your teeth, go to the bathroom or utter a word. If you miss a day, go back and do it again. By the time you do it consistently for forty days, on that forty-first day, if you don't get up and take those five deep breaths, you're going to feel it. You're going to know immediately, 'I didn't breathe today.'"

"It seems so simple, yet the implications are enormous. Just imagine the ripple effect if each one of us did as Vanzant suggests: 'First thing in the morning: Eyes open, sit up, feet to the side of the bed, five deep breaths--every day for forty days. I guarantee you, your entire day--your being, psyche, everything--is going to change.'"

"Gay Hendricks, author of Conscious Breathing, has been studying the breath for years, and shares this insight about breath and health that arose in a recent study: 'Somebody sat a graduate student in a medical doctor's office, and simply asked that student to watch breathing patterns in the waiting room. They found that something like eighty-eight percent of the people in the waiting room had disturbed breathing patterns. Regardless of their physical problem, they had disturbed breathing. That was one of the most fascinating things I've ever read. Probably none of those people were going to go in there and have anything done about their breathing.'"

"Hendricks goes on to say, 'Many of the most creative medical doctors I know--Andrew Weil is a prominent example--[see Part 3, section 1.13.1] say, 'Look at breathing along with everything else.' Many medical doctors say disturbed breathing goes along with illness--but which comes first? We're not sure. It could be that the disturbed breathing actually creates the situation in which there's a disturbance in other organs in the body.'"

"On a purely physiological level, if you learn how to breathe deeper and more powerfully--with exercise, for example--you actually grow more capillary space in your body. There are about 60,000 miles of capillaries in your body. But if you're a regular exerciser, you have a lot more than that. You may have another ten or twenty thousand miles of capillary space in your body, so you've literally got more space for feeling in your body. Good breathing enhances your ability to grow a larger version of yourself, on a purely physiological level alone. 'When you're breathing correctly, you don't have to worry too much about getting breath up into your chest. It'll take care of itself. You want to aim the breath down and in, so that it really rounds that area between your navel and the top of your pubic bone. That's the key area you want to keep softening, in order to get a full breath down in there.'"

"Everybody, all day long, can mix themselves what I call an 'oxygen cocktail,' right there on the spot, and take that nice, deep belly breath. I do it all the time in meetings.'"

"Participating in something with your breath and with your consciousness, feeling it, breathing through it, will lead you to action more quickly. I've found that if I breathe through my fear, suddenly the action I need to take is revealed to me very quickly. If I resist it, it may take me longer to get to the actual message of it. Breathing through things, I've found, actually catapults you into action more quickly.'"

"Elizabeth Barrett Browning said, 'Whoever breathes most air lives most life.' The more we really celebrate ourselves and open up to deeper and healthier breathing, the more life we'll feel.'"

"Breathing deeply from the diaphragm is natural for healthy, new babies. When and why so many of us lose this natural capacity is the subject of a lifetime. Whatever the reasons, many of us have poor breathing habits. Nancy Zi, voice teacher and author of the book The Art of Breathing and a videotape of the same title, tells us that mental imagery is very important in teaching breathing

because the action of breathing is very abstract and intangible. As a shallow breather myself, I find her image of an eyedropper very useful."

"She says, 'Think of your torso as an upside-down eyedropper--the kind with a glass tube and rubber bulb. Imagine your stomach as the bulb; when you exhale, you squeeze that rubber bulb, and air goes out. Now, instead of stuffing in air through that glass tube and pushing the bulb out, all you have to do is let go of that pressure. The bulb will expand, and air will be drawn in.'"

"If you think of breathing that way, instead of shoving air in, you will find that you are not breathing audibly. You'll find a lot of people breathing like 'hahh, hahh'--you hear it. With this imagery of drawing in instead of stuffing in the air, you breathe better. Also, you are breathing abdominal."

"Zi goes on to say, 'We don't really put air into our stomach; the air goes into the lungs. But on top of our stomach muscles is the diaphragm and our diaphragm muscle is where the lungs sit. So if we expand our abdomen, the diaphragm drops, pumping air to the bottom of the lungs. If your diaphragm muscle is always squeezed, the lung is squeezed upward, and you are not using the bottom part of the lung. Abdominal breathing doesn't really mean air going into the abdomen. It just gives that sensation.'"

"In this age of medical doctors relying on high-tech medicine and pills for every ailment, it's refreshing to hear from Andrew Weil, a Harvard-trained doctor who has traveled around the world checking out alternative modes of treatment from a diversity of cultures. When asked what most impressed him, he came up with a surprising answer." [see Part 3, section 1.13.1]

"Weil laughingly said, 'There's an odd thing about all this, which conforms to what we read in myths and enlightenment tales of how it's supposed to be. I spent about ten or twelve years seeking out healers in remote areas. Some of it was very arduous traveling, getting to some very remote places, tolerating lots of discomfort and also being very disappointed with what I found at the end of the road.'"

"Then it turned out that the most interesting healer that I learned from was in my backyard--in Tucson, Arizona, where I had been living--and I didn't know about him! It was only after all of this traveling that I found him."

"He is an osteopath, a D.O., who is now [1996] about eighty-four. He is, I think, the most effective clinician that I've seen, and has an incredible success rate. From him I learned, among other things, the importance of breathing as an essential function of human health and illness. He practices from a tradition that was developed in the 1930s, based on craniosacral manipulation, which is work on the cranium (the skull) and the sacrum (the tailbone)."

"In this theory, breathing is seen to be the key to health. Proper breathing nourishes the brain and central nervous system. If breathing is impaired, the natural movements of the brain and the membranes covering it, and the fluid covering it, are not adequate. This can result in disease in any system of the body."

"Now, I think here is a real point of difference kind of medicine and regular medicine. In medical school, I learned nothing about breathing. I learned about diseases of the respiratory system, but I learned nothing about the function of breathing. In regular medicine today, there is a total absorption with symptoms in the diagnosis and treatment of disease--once it's already there--with very little attention paid to the normal functioning of the human body, and seeing the importance of functions like breathing."

"I could talk for hours about breathing and breath, and its importance to both physical health and mental health, and how simple it is to teach people about breathing as a preventive technique, as a way of controlling moods like anxiety, for example, as a way of improving cardiovascular function--a key element."

"One of the most important things that I learned by watching this man was that I also saw him perform relatively instant cures of conditions that had resisted long-term treatment by regular medicine. To me it was very refreshing to see that you could treat illness without a lot of equipment, without a lot of technological hardware, without drugs, without charging people a lot of money, doing very simple stuff and getting excellent results. That was very refreshing to me."

"This man's philosophy is very simple: He talks a lot about the healing power of nature, and that you make this little adjustment and 'let old Mother Nature do her work.' That attitude is also something I don't see much in allopathic medicine--a reverence for and recognition of the healing power of the human organism."

"It seems to me that, when used correctly, the breath can positively affect our state of being better than any miracle drug. In fact, I'm going to mix myself an 'oxygen cocktail' right now. Please, won't you join me? With five deep breaths I toast your good health, well-being and deep connection to a life lived in fine balance of mind, body and soul."

17.3.1. BREATHING YOUR WAY TO HEALTH

with Nancy Zi Audio Tape 1 hr. (quoted in full)

"To breathe is to be alive, and as we breathe more deeply and fully, so can we experience life in a deeper and more complete way, according to Zi, a classically trained professional singer and voice teacher who has developed a philosophy and practical approach to breathing she calls Chi Yi, taken from the Chinese words *chi* for breath and *yi* for art. Based on the ancient Chinese practice of chi kung, a technique of breath manipulation used as the basis for many forms of martial arts, it helps people create a greater sense of power and balance and sharpens mental and physical coordination. Zi is the author of [The Art of Breathing](#) (Bantam 1986)."

17.3.2. THE POWER OF BREATHING

with Gay Hendricks Audio Tape 1 hr. (quoted in full)

"Breathing deeply and consciously is a part of almost every meditative healing practice in human history, and in this dialogue you will hear why. Hendricks also describes simple methods for improving health conditions, resolving fear, tension and old hurts, and expanding your capacity for joy, well-being and creative action. He tells how breathing can help us 'grow new positive energy channels in ourselves, so that we can actually learn to experience higher levels of organic bliss.'

This program includes a brief excerpt of physician Andrew Weil speaking on a previous 'New Dimensions' program. Hendricks is a pioneering psychologist in body-centered therapies, the author of Conscious Breathing: Breathwork for Health, Stress, Release, and Personal Mastery (Bantam 1995) and co-author, with his wife Kathlyn, of several books including At the Speed of Life (Bantam 1993). Hosted by Shoshana Alexander."

"Topics explored in this dialogue include:

- ∞ what conscious breathing is--and how to do it
- ∞ reviving yourself with an oxygen cocktail'
- ∞ how fear is behind most anger, and how breath can release both
- ∞ the connection between breathing disturbances and illness
- ∞ pain control and relief through breathing
- ∞ participating more fully in your life and your sensations
- ∞ how relationship dynamics are revealed in breath patterns
- ∞ expanding your capacity for joy and well-being"

17.4. THE MYSTERY OF THE BREATH

by Michael Grant White Association of Humanistic Psychology Perspective, January/February 1996, pp. 10-11, 31 (quoted in full)

Michael Grant White is creator of Balanced BreathingTM, a Somatic Education System, is certified in Radiance Breathwork and Rebirthing, and is a member of the steering committee of the AHP Somatics and Wellness Community.

"A few months ago my mother told me that she witnessed my father terrifying me with a vacuum cleaner when I was about two years old. When she asked what he was doing, he said he was going to 'make a man out of me.' At seven I took the 'wrong' street home from Sunday School arriving home on time. An hour later my paternal grandmother returned after going up the 'right' street to meet me. She went to the cupboard, returned with a double razor strap, and beat me with it for a very long time yelling something about paying attention to instructions."

"Four years later my fifth grade teacher had the class sing every morning for forty five minutes. Life was wonderful, I was receiving mostly A grades, and was even asked by my teacher to sing for the entire school!"

"Over the next few years as a result of accumulating demerits by not making my bed, taking out the trash, feeding the dog, or doing the dishes, I received from my father several beatings that went beyond the point where I could scream. I also experienced several random traumatic experiences involving my ability to breathe."

"At thirty-three, after enduring a numbing sense of loss from a devastating divorce and loss of the presence of my beautiful three-year-old son, I realized that my life felt very empty--at an all-time low. I remembered that singing used to make me feel great, but I could no longer hold or match a tone vocally and I instinctively sensed this might connect to my grief and confusion. I sought a singing teacher and found one who, as chance or destiny would have it, was receiving a form of transformational breath training. She recommended I do the same."

"Now, at fifty-four, I feel much younger and my life is much different. Relationships guide my priorities. I feel worthwhile and am treating myself accordingly. Though some hearing loss challenges my patience at times, I am most often at peace, even when those near me are not."

"Without becoming a yogi or a spiritual master there is a great deal that can be done very simply through balanced breathing, conscious exercise, and nutrition. Here we explore the mystery of the breath."

"Balanced Breathing. *Breathing* is the physical, mechanical act that brings air into the body. *Breath* is the air or life force that is taken in. We are born with the instinct to breathe, though most of us use only a fraction of our breathing strength. This natural ability may have been compromised in the womb, during birth, infancy, or later. It is further compromised by air and water pollution, devitalized and toxic foods, stress, chronic muscular tensions, toxic belief systems, and chronic fear, shame, and guilt."

"How we breathe affects our health, the way we look and feel, our resistance to disease, and our life span. Few people really know how to breathe optimally and fewer yet can sustain a full-bodied breath for more than a few moments before experiencing dizziness, confusion, and spaciness. Sore, tight muscles, hyper- or sub-inhalation/ventilation, trauma restimulation, and toxin recirculation also result."

"A normal, relaxed, fully functional, balanced breath is like a wave. The breath wave must be able to freely transition up and down between the abdominal, mid-, and high-chest breath. To better understand this breath wave, imagine lying down at the beach, on your back, with your feet pointed toward the water. Watch the rise of the ocean out about fifty yards. This is like your breath at your belly. Watch the calm, surflless water rise and come forward where it meets the uppermost part of the shore (the back of the top of your head), then recede back towards the depths of the ocean (your belly). Think of the water as your life force. Imagine your chin as a rubber raft that is gently raised as the water approaches the uppermost part of the shore (the top of the back of your head). That's the inhalation. For the exhalation imagine the water receding and dropping somewhat evenly overall and slightly faster in the chest area. If you've watched waves rush in and recede, you will know what I mean. If you've never been near the ocean, for twenty minutes watch the breathing pattern of a two-month-old baby in deep sleep, imagining it in slow motion. Feel your back softly flatten into the surface on which you are lying as your pelvis rocks gently forward--like a gentle sexual thrust or extension. Feel your pelvis rock backward and out of the way as your back arches slightly to express the rising belly. To allow the tip of the wave to raise the jaw and move the occiput, try the breath wave in a sitting position or with the head at a lower level than the surface on which you lie."

"The breath wave may go out of balance. For instance, instead of rising and coming forward to raise the belly, chest, and chin, it may stay level or sink downward as if someone were pressing down, not allowing it to rise or fall. It may halt, then push upward again, having lost momentum and its smooth transition. We experience this as feeling 'breathless' or 'stuck.'"

"A major obstruction to a balanced breath wave is a locked-up diaphragm. I call the diaphragm the 'speed bump of life.' This speed bump functions like a breakwater which restricts the natural ebb and flow of the breath. It may appear as a hitch or shuddering movement as the breathwave travels

erratically upward or downward within a breath cycle. The degree to which the breath cannot transition is the degree to which we get stuck emotionally and mentally, feeling anxiety or fear."

"We resist unwanted information and related feelings by holding or reducing our breath. So, if someone is saying something and it seems logical but you notice your breath becoming slower, more shallow, faster, or deeper, you probably have an issue, positive or negative, with the information. It will pay off to become more conscious of your breath, body sensations, and the situation."

"To deny our body responses and somatic awareness is to suppress millions of years of somatic evolution and survival mechanisms. For example, the next time you feel your breath catching or find yourself suppressing it, you might think of it as a message. Notice if you are afraid, anxious, at a loss for words, or in some way disempowered. Then take one or more long, slow, deep breaths. Start in your belly and maintain a foundation there while letting the breath move up to the top of the chest. Then exhale by letting go."

"Some indicators of unbalanced breathing are: tightness in the chest; chronic illness; fear or depression; frequent colds; poor attention: sighing or yawning; poor posture; can't catch breath. An irregular breathing pattern is a tip-off. Repeating a poor breathing pattern over time will restrict or lock up the diaphragm and the musculature of the pelvis, stomach, back, chest, throat, jaw, and eyes."

"If breathing more fully causes you to feel uncomfortably dizzy, spacy, or confused, it's probably because your breathing is habitually imbalanced or too shallow. At first you may feel energy in the form of buzzing, streaming currents or breezeliike sensations. I used to feel dizzy and occasionally still do, but as I am able to tolerate more breath, the dizziness subsides and I become energized and relaxed just by breathing in a balanced way for a few minutes. Many clients have reported increased relaxation, intense sexual feelings, bliss, and even mystical experiences from the breathwork!"

"Breathing Based Stress Management. We encounter emotional, physical, mental, and environmental stresses daily. Burnout, fatigue, guilt, lack of control and helplessness, epidemic-scale autoimmune disease, food allergies, chemical hypersensitivities, mental weakness, and confusion plague our society. Responding rather than reacting is a primary goal of body-centered stress management. How you breathe impacts *all* of these."

"Strategies for handling distress often tempt us to rely on cognitive or thinking processes. We try to substitute information for experience and intuition. If heeded, one's body will prompt one to respect its vulnerability, listen to and trust its messages, exercise and feed it wisely, allow it to rest and heal. This is the basis of intuition!"

"'Shallow breathers poison themselves,' says Paul Bragg. 'Take lots of long, slow, deep breaths and you will live longer.' By not breathing sufficiently, toxins remain in our bodies, running through the entire elimination system and back into circulation again. Good breathing practice can release over 70% of your toxins! Dr. Sheldon Hendler states in his book, [The Oxygen Breakthrough](#), that 'Breathing is the *first* place, not the last, one should look when fatigue, disease, or other evidence of disordered energy presents itself.'"

"Correct respiration reduces negative stress, helps to balance the brain hemispheres and blood PH, strengthens the immune system, improves brain blood circulation, memory function, metabolic activity, muscle and vascular tone, lymphatic drainage, arterial blood flow, and psychological functioning. Nerve and hormone responses such as secretions of adrenaline, neuropeptides, endorphins, epinephrine, norepinephrine, insulin, glucose, and others come under more dependable control. This has enormous relevance in self-regulation and stress management. It is also the basis for deep emotional release, self discovery and expression, internal power, and spiritual experience."

"My son was ten years old and was afraid to go on the Santa Cruz roller coaster with me. He finally relented when I reminded him of all the great foods he'd learned to enjoy because he had been willing to take a little risk. I told him I would remind him to breathe. With the first run his face and knuckles turned bone white and he finished visibly shaken. On the second ride I kept up the reminders to breathe. On the third ride we rode in the front car joyfully whooping and hollering as we both held our hands triumphantly in the air during the entire ride."

"Breathing into fear and resistance; breathing and consciously surrendering, letting go, and trusting; breathing during times of threatening stress--these are moments of extreme power and transformation. *Control your breathing and you control your life!*"

"How you breathe and what you eat influence your life more than almost anything else. You may have previously realized the importance of the food you eat, but remember: anything you do 7,000 to 30,000 times a day has to affect you in many, many ways!"

"Conscious breathing has deeply affected the core of my personal evolution, my thoughts, feelings, and actions. I've even learned to like myself! I have also forgiven my father. He is gone now, to his next expression. I know that he loved me. What he did to me was done to him, and there's no one left to blame. His ring is my most valued possession and I wear it proudly."

17.5. OVERBREATHING: ITS EFFECTS AND WHAT YOU CAN DO ABOUT IT

by Joseph G. Hattersley, MA and Kevin J. Treacy, MBBS Townsend Letter For Doctors & Patients,
January 1998, pp. 92-95 (quoted in full)

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17.5.1. INTRODUCTION

"A sports-trainer in Olympia, Washington tells his students, 'Breathe deeply.'¹ We've all heard it: inhale more oxygen, improve energy and health. But a karate instructor in North Pole, Alaska tells his charges to meditate half an hour before each lesson. Meditation slows heart-beat and breathing - and increases energy, improves health. Who is right? Surprise: the karate teacher!"

"America has the most expensive, least successful health-care system in the "First World." We expend 14% of Gross Domestic Product on it; for only 6-8% of GDP, other nations achieve better

health, longer life expectancy and lower infant mortality. So we need to explore alternatives. And no matter how derisively ridiculed at first, many such options later become integrated into standard medical practice. Examples include *penicillin*, the *electrocardiogram* and the *pap smear*. Among alternatives, the principle that overbreathing causes illness is little-known in America."

"Victor Potapov, PhD's article, '*Hypoxia as Essential Healing Factor in Clinical Medicine in Russia*' (Townsend Letter for Doctors and Patients, Aug./Sept. 1996: 88-91) - will puzzle most doctors among the journal's readers, and almost all patients. *How can lowering oxygen intake increase oxygen utilization in the cells?* The answer is found in the *Bohr effect* - discovered by Austrian physiologist Christian Bohr - which physiology textbooks describe but not its consequences. Habitual deep breathing lowers carbon dioxide (CO₂) in the bloodstream." ²

"A chief function of hemoglobin in erythrocytes (red blood cells, RBCs) is to deliver oxygen molecules to all the body cells. In the Bohr effect, when CO₂ is lowered by overbreathing, hemoglobin molecules bind oxygen molecules too tightly. (In technical terms, deep breathing strengthens the bond between hemoglobin and oxygen molecules.) The RBCs then do not release enough oxygen to the body's cells."

"The resulting oxygen starvation is known as hypoxia, defined by Webster's New World Dictionary as an abnormal condition resulting from a decrease in oxygen supplied to or utilized by body tissues. ^{3,4} The body then takes genetically determined defensive measures, identified as more than 150 conditions. This is destructively poisonous and leads to general deterioration of health. Treated symptomatically, these conditions remain "incurable" simply because their origin (hyperventilation) is not recognized and corrected." ⁵

"With a less than ideal CO₂ level, the body uses other mechanisms against this excessive loss of CO₂, to make more oxygen available to cells. CO₂ dilates vessels. Therefore, a shortfall of it causes spasming not only of bronchus tissue as in asthma and bronchitis, but also of blood vessels as in angina. Without these defensive reactions, said Konstantin Buteyko (see below), people would perish faster."

"Most people should normally breathe three to four liters of air per minute (L/min.; a liter is 1.06 quarts). (Intake of more air is of course necessary during physical exertion, particularly at high altitude.) As is well known, extreme hyperventilation (overbreathing) of say, 30 L/min. can kill. Tradition taught that death then resulted from oxygen over saturation of the brain; in fact, because of the Bohr effect, extreme hyperventilation cuts off oxygen supply to the brain."

"*Humanity evolved in an atmosphere in which CO₂ was in whole percents* perhaps from volcanoes. As atmospheric oxygen built up through evolution of photosynthesis, ⁶ CO₂ levels dropped. Now its concentration in the air is 0.03 percent. Through gradual evolution, humans have had to ideally maintain CO₂ levels in the alveoli (air sacs) of the lungs, at 6.5 - 7%." ⁷

17.5.2 KONSTANTIN R BUTEYKO

"Konstantin R Buteyko, MA, Ph.D. (Born In 1923) - strangely, not mentioned by his countryman Potapov - first noticed and explored these relationships. He discovered *hidden hyperventilation* or "hyperventilation syndrome": long-term overbreathing that is not clearly noticeable in the patient.

People normally breathe in and out about 17,000 times a day. The damage that extreme hyperventilation can accomplish in a few minutes -- hidden overbreathing wreaks slowly. Many people breathe three to 10 L/min. too much whenever conscious and, possibly to a greater extent, while sleeping (see below)."

17.5.3 DEVELOPMENT OF THE BUTEYKO METHOD.

"Assigned as a medical student to monitor dying patients' breathing, Buteyko found that the sicker they grew, the deeper they breathed. He learned to predict the day and *even the hour* of death."

"Knowing that no one would pay heed to his work without laboratory studies, he established a series of functional diagnostics laboratories. In 1958-59, he showed the USSR Academy of Science a linear relationship between the depth of breathing, the content of CO₂ in the body, vessel spasming and degrees of illness. By the end of 1966 he and his students had treated more than 1,000 patients including themselves for asthma, hypertension or heart pain. All of them substantially recovered, some from 20 or more conditions; none had been helped by allopathic treatments."

"Owing to the Bohr effect, habitual hyperventilation decreases delivery of O₂ to cells of brain, heart, kidneys and other organs, and to cells of blood vessels, muscles and all tissues. Due to artery spasm as well as the Bohr effect, brain oxygen drops measurably within 30 seconds of the start of deep breathing. Low CO₂ also disrupts the work of enzymes, protein catalysts or enablers that are required for absorption and utilization of our food. And it decreases synthesis of ATP (adenosine triphosphate), which the mitochondria, the energy powerhouses of all our cells, require."

"Like every revolutionary new medical technique, Buteyko's treatment was long rejected and he suffered personal abuse. One laboratory after another was destroyed or disbanded, yet he and his students pushed on; his method has been Russian government approved since 1983. It has been practiced ever since with a high degree of success throughout Russia, and more recently in, Australia."

"Without any objective evidence, for centuries the majority of the human race has taught children and adults, alike, to breathe deeply. Well-meaning but misinformed nurses, physicians and health writers tout the claimed benefits; some nurses even advise a new mother to rhythmically raise and lower her baby's little arms to inculcate a habit of deep breathing."

"Overeating, especially of animal proteins, processed and cooked foods, poor fitness and lack of physical exercise, emotional reactions, stress and stuffy environments also promote overbreathing. The resulting oxygen starvation of vital organs can excite the breathing center in the brain, leading to 'shortness of breath' and even more overbreathing in a vicious cycle."

"Prolonged sleep, especially on the back or with the mouth open, or both (as is common among asthmatics), encourages hyperventilation. One should sleep on one side rather than the back. A more reliable way to minimize mouth breathing in sleep is to tape the mouth shut."

"The gaseous mix in the womb, between 7% and 8% CO₂ (if the mother doesn't overbreathe excessively), is an interesting indicator of the ideal human environment. In South America, ancient tribes swaddled newborns, their prospective chiefs, so that they could adjust to consuming less

oxygen. ⁸ Mary wrapped the baby Jesus in 'swaddling cloths,' but the scriptures omit the reason for the then common practice."

"To achieve proper midfacial and upper jaw development, minimize teeth crowding and the need for braces, children must constantly keep the tongue behind the upper teeth, touching the palate. That is possible only with nose breathing. (Weston Price found in the 1930s that as "native" peoples moved from traditional diets to Western foods loaded with white sugar, white flour etc. - the next generation had crowded jaws, as well as decaying teeth. He photographed people of old and new generation side by side. ⁹ Habitual hyperventilation and mouth breathing, then, worsen the ill effect of processed diets on the face.)"

"And mouth breathing is an overlooked source of gum disease. Many people who sleep with their mouth open dry up their own saliva, promoting dental caries and gum disease."¹⁰

"CO₂ is found in the body in five forms: (1). dissolved CO₂ gas as dCO₂; (2). carbonic acid (H₂CO₃); (3). bicarbonate (HCO₃⁻); (4). carbonates (CO₃²⁻); (5). carbamates (R - NCOOH)."

"Perhaps carbon dioxide's most important function is, through its conversion to carbonic acid, as the number one buffer (regulator) cooperating with intracellular hemoglobin in maintaining a remarkably stable pH (acid/base balance) in the blood plasma. When our bodies are deprived of this balance by overbreathing, *respiratory alkalosis* (high pH) develops. And this directly alters the pH of the body, affecting the activity of all enzymes, vitamins and minerals. Years of nutritional abuse, emotional stress and/or negative emotions exacerbate this respiratory alkalosis."

"This in turn leads to renal (kidney) excretion of alkaline minerals calcium, magnesium, sodium and potassium, which are required for health. (Sherry A. Rogers, MD, a pioneer and authority in environmental medicine, often quickly halts years-long-recurrent panic attacks using magnesium supplements. ¹⁷)"

"Such respiratory alkalosis creates a compensatory metabolic acidosis, promoting such degenerative diseases as cancer, heart attacks and possibly ALS (Lou Gehrig's disease).¹⁸ CO₂ functions also as one of the powerful up-regulators of the tricarboxylic acid (Krebs) cycle. The Krebs cycle is a series of biochemical reactions which produce carbon dioxide and water from foodstuffs and release energy for the synthesis of ATP molecules. ¹⁹ If the CO₂ level falls below 3%, shifting the pH to 8 (alkaline), death ensues."

"Conditions that can result from hyperventilation - all of which Buteyko and his followers have ameliorated using his learned-shallow-breathing technique - include allergies; asthma; rhinitis, bronchitis, nonspecific pulmonary diseases; blocked sinuses; increased clotting and development of thrombophlebitis, angina (often as momentary sharp twinges), sclerosis of vessels, palpitations, tachycardia, ischemic cardiac disease and heart attacks; strokes and, remarkably, both hypertension and hypotension." ²¹

"Others are pneumonia, hemorrhoids and varicose veins, tuberculosis, eczema, ulcerative stomach disease, endarteritis (inflammation of the coating of arteries), muscular spasms, fainting spells or convulsions, sclerosis of lungs, neurocirculatory asthenia; anemia; stomach disease, chronic bacterial, viral, fungal and parasitic infections, and skin disease."

"The lowering of CO₂ through hyperventilation renders the nervous system extraordinarily sensitive to outside stimuli. This can lead to irritability, sleeplessness - sometimes including sleep apnea - stress problems, unfounded anxiety and allergic reactions."

17.5.4. TWO DRUG-FREE APPROACHES SEEK TO CORRECT THE LOW CO₂ THAT RESULTS FROM OVERBREATHING.

"Not only drug-free, both methods often enable patients to lower or stop drugs. They seek to improve the body's oxygen transport and utilization; their use stems from the conviction that most illnesses are provoked by *oxygen deficiency at the cellular level*."

"Potapov tells of a 100-pound device called the *Hypoxicator*.²² In daily 30-minute treatments, through a face mask it feeds the patient lowered CO₂ air; periodically the patient breathes ambient (room) air for a short time. This therapy, adjusted to the needs of each individual, is called *RIHT* (Respiratory Intermittent Hypoxic Training). Its successful use in avoiding post-surgery complications was sensational and encouraged wider use. Sample devices have become available in Germany, Switzerland, Slovakia and the US."

"He states that the body's cells acquire more oxygen using this device than cells in matched patients given biooxidative or hydrogen peroxide therapies - both of which are practiced successfully in Russia and other republics of the former Soviet Union, throughout Europe and (under cover to avoid an FDA raid) in the United States."

"The same statement applies to Buteyko's method of sustained shallow, diaphragmatic breathing. (Such breathing, similar to that used in *yoga*, provides much more efficient oxygen utilization than chest breathing, The advantage over *yoga*: after one has trained the brain's breathing control center to want less oxygen, proper breathing is automatic.) He named his system **ICDR** for Intentional Cessation of Deep Respiration. Its goal is to increase blood and alveolar CO₂ and thus to eliminate the body's many reactions to too-low CO₂."

"In both Hypoxic training and the Buteyko method the brain cells, cardiac and respiratory muscles get increased supplies of blood, oxygen and CO₂. The citric acid cycle quickens, causing liberation of energy from sugars and a higher rate of waste metabolizes washout. Except for a few temporary "sanogene" (self-cleansing) reactions, no adverse symptoms have been reported from use of either method. And it is impossible to raise CO₂ above 6.5 percent."

17.5.5. COMPARING THE TWO APPROACHES.

"Just as exhaling into and inhaling from a paper bag is not a viable long-term solution to anxiety, the Hypoxicator cannot break any patient's tendency to overbreathe. One could then ask, "Is it only an expensive paper bag?" Potapov suggests relapse is unlikely; yet that could happen to a patient with a chronic condition like asthma, if he/she does not continue regular treatments on the machine."

"In the Buteyko method, without any equipment, the patient learns self sustainable correct breathing. Buteyko and doctors he has trained have treated *hundreds of thousands* in Russia for a

wide variety of conditions, achieving remarkable long-term results. As long as the patient is vigilant regarding any tendency to overbreathe and especially to avoid mouth breathing, the clinical improvement is sustained."

"Australia has used the Buteyko technique for over five years, particularly in asthma and rhinitis; results there have also been remarkable. In an unpublished study at a major teaching hospital in Brisbane, 20 asthma patients were trained in the Buteyko technique; 19 matched patients used conventional physiotherapy deep breathing techniques. At three months, the Buteyko group showed a statistically significant 80% reduction in bronchodilator use and a non statistically significant 36% drop in inhaled corticosteroids."

"Buteyko under breathing is difficult to learn unassisted, though he did it curing his own hypertension. When Buteyko resumed his former breathing habits, his blood pressure went right back up. And after he told patients to revert to their earlier breathing their symptoms, too, invariably recurred. He concluded that he had made a global discovery and that medical thinking was upside down. After extensive library research he was astounded to discover that no one had ever published this simple idea before."

"With skilled instruction, children from three years of age on up, as well as adults readily learn the method. The training requires two solitary half-hours daily. The Buteyko-Australia manual concludes, 'We often observe patients who start to improve immediately after our introductory lectures: for those people the simple awareness of the harm caused by over-breathing was beneficial.'"

17.5.6. TWO TYPICAL CASE HISTORIES FROM AUSTRALIA ²³

"(1) *Emma S. (age 8.5 yr.)* had been diagnosed with asthma at age six; despite (or because of) increasing medication she grew steadily worse. When she started ICDR she was using two nebulizers, each four times a day, and prednisone. Seven weeks later and up to the time of the report after two years, she needed no medication nor had asthma symptoms."

"(2). *Giovanna C. (age 57)*. A severe asthmatic, virtual invalid on heavy drug regimen including nebulizers, other drugs, and a ventilator to sleep; massive weight gain; and respiratory arrest. Less than three weeks after the training, Giovanna was living without the ventilator and using only one drug at half the former dose. Huge weight loss and improvements in other areas of her health were continuing."

"**Addendum:** In a related therapy, the Institutes for the Achievement of Human Potential, Philadelphia, PA, achieve arousal from coma using inhalation of 10 percent CO₂ with oxygen. The carefully regulated inhalation, lasting 10 to 15 seconds, is repeated 10~15 times daily. Inhaled carbon dioxide, they find, produces vasodilatation (widening of arteries)."²⁴

"The Institutes have used this technique also to improve emotional, intellectual and cognitive performance in children with various forms of brain injury. It shows promise against Parkinson's disease too."

"*ASTHMA is increasing, especially among children. Between 1980 and 1992 the number of children in America with asthma grew from 2.4 million to 3.7 million. Twenty-five percent of urban elementary children carry an inhaler to school, higher in some cities.*" Since 1980 the total number of asthma patients has risen more than 60%, to over 15 million; and since 1978, asthma deaths have more than doubled." ¹²

"*Asthma is not a disease*, Buteyko asserted, but one of the body's defensive mechanisms against hyperventilation. ¹³ He discovered that *the average person with asthma breathes three to twelve times* the recommended amount. ¹⁴ The body slowly increases bronchospasm and mucous production - its defences against overbreathing. Bronchodilator medications ease the tightness experienced during an asthma attack, overriding the defensive mechanism - and so gradually the condition worsens."

"Conventional treatments of asthma have a dark side. For certain allergic patients the preservatives in nebulized bronchodilators cause bronchoconstriction. ¹⁵ And for many older patients inhaled steroids, intended to block or reduce inflammation formerly claimed not to circulate throughout the system - promote glaucoma, the leading cause of blindness. In a comparison the risk appeared to be elevated by 44%, compared to matched patients not using inhaled steroids. Lea Davies of Georgetown University Medical Center in Washington, DC, adds that inhaled steroids may cause about one-third of the 3,000 glaucoma cases developing each year among Americans over 65." ¹⁶

"It is widely acknowledged that asthmatics benefit from swimming, yet other forms of exercise trigger 'exercise induced asthma.' The secret: swimmers gradually release their breath while swimming with their face under water, then turn the head and inhale quickly. There isn't time to overbreathe. A young friend confirmed-. regular swimming made his asthma better; after he quit regular swimming, it worsened. Although a championship swimmer in high school, he couldn't play baseball or basketball 'because of asthma.' He could hyperventilate in those activities."

Note: Allergies are often blamed for asthma; yet Buteyko believes many allergies too are a defensive measure against chronic hyperventilation."

"Recent research has thrown new light on the mechanism by which hypoxia-caused acidity promotes tumor growth. Research led by Toni Y. Reynolds at Yale University School of Medicine appeared in the December 15, 1996 Cancer Research and was abstracted in Science News. They confirmed that hypoxia does promote tumor growth and speculated that the resulting increased acid content may directly injure DNA or may impair the enzymes used to correct DNA mutations." ²⁰

"Dr. Treacy has made a 45-minute, professional quality video - Buteyko Breathing Method: The Most Effective Drug-Free Approach to the Management of Asthma, Emphysema, Bronchitis. It is to be distributed in America by Lane Smith of Intercept USA. Phone 1-714-854--5004- a toll-free number will be added soon."

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17.6. BREATHING AND HEART RATE VARIABILITY (HRV)

In Module 4 of the REBsm protocol, we introduce the practice of deep diaphragmatic breathing through the nose. The impact of breathing patterns on physiological functioning is also now widely acknowledged. Hirsch and Bishop state: "At rest the heart rate increases on inspiration and decreases on expiration... [T]his phenomenon is called the respiratory sinus arrhythmia (RSA)... [I]nvestigators have studied the separate effects of breathing frequency, tidal volume and static lung volume [deep breathing] on the RSA amplitude... and wave form... or phase angle... [W]hen breathing frequency is increased, the amplitude of the heart rate oscillation decreases... and when tidal volume... or static lung volume... is increased [deep breathing], the amplitude of the heart rate modulation increases. (Hirsch and Bishop, 1981, p. H620).

"Three mechanisms are generally proposed to explain the modulation of heart rate associated with respiration: (1) a direct influence of medullary [brain stem] respiratory neurons on cardiomotor neurons... (2) an indirect influence on heart rate of blood pressure changes secondary to respiratory movements that is mediated via arterial baroreceptors... or arterial stretch receptors... and (3) a reflex response to lung inflation mediated by thoracic stretch receptors..., most likely from the lungs... and chest wall.." (p. H628) (Hirsch and Bishop, 1981). (see also Hamsworth, 1995, p. 12) "Controlled respiration at frequencies within the resting physiological range provides a convenient tool to enhance the vagal [parasympathetic] modulation of heart period... [T]he power of the HF [High Frequency] component [which reflects parasympathetic control] becomes predominant at rest during metronome [paced] breathing... If the frequency of controlled breathing is decreased enough to approach LF [Low Frequency] rhythm, the two components [sympathetic and parasympathetic] merge into one more powerful oscillation. In general, all of the studies that have been performed under controlled respiration in the broad range of 0.20 to 0.30 Hz were likely to be characterized by a sympatho-vagal balance shifted in favor of the vagal [parasympathetic] component." (Malliani, 1995, p. 180-181)

Since the Heart Rate Variability measure is considered an indication of the autonomic nervous systems functioning, it seems useful to include breathing patterns to help the balance described in Part two (see Pomeranz, Macaulay, Caudill, Kutz, Adam, Gordon, Kinborn, Barger, Shannon, Cohen and Benson, 1985) and (Tiller, McCraty and Atkinson, 1996)

17.7. UNILATERAL FORCED NOSTRIL BREATHING (UFNB)

Although the REBsm protocol doesn't explicitly use alternate nostril breathing, it could easily be incorporated. In the core REBsm documents, "Part Three: Additional approaches...", there are instructions for it.

17.7.1. INTRODUCTION: BREATH IN LIFE AND HEALTH

"...[B]reathing is a central principle in communication and healing and forms the basis of many therapeutic disciplines,... [thus we should] encourage our clinicians towards their breath and away from their machines." (Aldridge, 2001/2002, p. 122)

"By gaining control of the breath, we gain mastery of mind and body. Not only that, we also establish a connection with the world around us... through the breath... There is a variety of qualities

to the breath. It has volume...; it needs to be centralized to be certain; the breath must be far reaching to be strong; it must be rhythmic to achieve balance...; and it must have depth to encourage strength. These qualities of breath -- volume, focus, reach, balance and strength -- can be trained and have ramifications for health. Furthermore, these qualities are also necessary for the efficacy of the healer. (Aldridge, 2001/2002, p. 109)

"Breath is an important factor in activating the patient. Vitality itself derives from *viva*, 'Let him live.' The breath carries such a living force. Breath and spirit share the same root, in Latin *spirare*, which later becomes *spiritus*, life breathed as the Holy Spirit... Healing is '... the intentional influence of one or more persons upon a living system without using known physical means of intervention.' The etymological roots of intention are in the Latin *tendere* that means a stretching of the mind to become attentive, with expectation. This extended attention of the mind is a dynamic process of shifting awareness to the other as an offer of contact. It is the breath that is the vehicle for this reaching out. Influence, from the Latin *influere*, is a 'flowing in.'... Healing, from this perspective, is the offer of a dynamic process the stretching of the mind of the healer that flows into the other person on the influential breath... [W]e can speculate about what we project into the world on the out-flowing breath. We understand others, and are ourselves understood, by the way in which we breathe... We influence others, and are ourselves influenced, by the flow of breath." (Aldridge, 2001/2002, pp. 111-112)

"[T]here is an understanding of healing based upon a natural breathing cycle. A cycle that becomes rhythmic when it is intended... [T]he endeavor of healing, through the intentional action of the healer, is to extend the attention of the sufferer beyond a simple cycle to a broader perspective... [I]t is based on breathing and involves a change of consciousness, and this change of consciousness is basically what is meant by transcendence.... The vehicle for psychotherapeutic efficacy may be a controlled environment of breathing where transference does take place, but this is a transference of consciousness through breath, not cognition. Indeed, the intentional control of breath is the basis of achieving changes of consciousness in various spiritual traditions." (Aldridge, 2001/2002, pp. 113-114)

"We are reviving an ancient technology of the mind [using specific patterns of breathing]... The implication of this technology is that we are not helpless victims of a given emotional state... The nose is an instrument for altering cortical activity... The nose is far more than an olfactory device. Discovering this is like finding a new sense... The brain hemispheres may be thus integrated as well as selectively activated [through breathing]. The evidence for lateralization of emotions... suggests that feelings are subject to alteration by appropriate breathing activities." (Shannahoff-Khalsa, 1983) 'A 1986 investigation showed that alternating cycles of sympathetic and parasympathetic activity are tightly coupled with the nasal cycle: the alternating dominance of airflow through one nostril or another...The nasal mucosa is one of the most abundant tissues... innervated by both the sympathetic and parasympathetic branches of the autonomic nervous system... Forced breathing through one nostril generated contralateral EEG activity... It was almost immediate and seemed generalized across the entire hemisphere... Earlier experiments have shown that EEG activity can be triggered by air inflow through the nasal mucosa without lung involvement. Local anesthesia of the mucosa membrane counters the effects of the airflow on cortical activity." [emphasis added] (Brain/Mind Bulletin, "Breathing cycle linked to hemispheric dominance") [emphasis added]

"Zajonc, of the University of Michigan, has found... that breathing through the nose cools the hypothalamus, which affects brain chemicals that influence mood. Changing the temperature of the hypothalamus may affect the release and synthesis of a variety of neurotransmitters... [T]emperature changes are known to affect all biochemical processes... The hypothalamus is involved in regulating the temperature of the brain and in controlling aggression, eating and sex, all of which have large emotional components.. Changing levels of neurotransmitters such as norepinephrine and serotonin can make a person feel calm or excited, or have a depressant or antidepressant effect. 'Anything that allows you to change hypothalamic temperature will have subjective effects.. And within some limits, you can change hypothalamic temperature at will.' Anything that affects a person's breathing...can affect mood... 'You breathe thorough your nose because you cannot cool the brain by breathing through your mouth... [Breathing] 'cold air puts people in a much better mood than warm air.'" (Alder, 1990) (see also Ingber, 1981) [emphasis added]

There are two tiny clusters of neurons in the front part of the hypothalamus (the suprachiasmatic nuclei) which are connected by a neural hotline (straight with out any synaptic connections) from the eyes. Apparently [...there are two pathways from the eyes to the brain: one for conscious vision and the other for circadian entrainment." (Strogatz, p. 100) This area of the hypothalamus is the master clock/circadian pacemaker for alertness and body temperature cycles. The body temperature cycle is a reliable marker of its actions. Alertness, sleep duration and the presence of REM (Rapid Eye Movement sleep) is regulated by this nerve center. "The propensity for REM is synchronized to the body temperature cycle, not to sleep itself... [O]ur rhythms of short-term memory, the secretion of the brain hormone melatonin, and several other cognitive and physiological functions also run at the same period and maintain constant phase relationships to the temperature cycle and to one another." (Strogatz, p. 87)

This provides a possible mechanism for the calming effect of breathing through the nose to cool the hypothalamus: when the master circadian and body temperature control center is cooled down it might send a message to the other body temperature regulators to warm up, thereby producing in turn less alertness and sleepiness. Alertness goes hand in hand with body temperature: low body temperature goes with low alertness (sleepiness) and high body temperature goes with high alertness.

17.7.2. PERIPHERAL EFFECTS OF UFNB (UNILATERAL FORCED NOSTRIL BREATHING)

"The nose and lung connection indicates that forced inhalation through one nostril produces a significant increase inflation of the opposite side lung. Sympathetic activity produces vasoconstriction in the nose but produces vasodilatation in the vessels of the lung... [R]ight nostril dominance correlates with the 'activity phase' of the BRAC [Basic Rest-Activity Cycle], the time during which sympathetic activity in general exceeds parasympathetic activity throughout the body... [R]ight UFNB reduced blink rates and... left UFNB increased involuntary blink rates... [I]ntraocular pressure can be selectively altered by UFNB patterns... [R]ight UFNB leads to a... decrease in intraocular pressure and... left UFNB increases it... This is further evidence that right UFNB increases the generalized sympathetic tone of the body, thus correlating with the 'active phase of the BRAC [Basic Rest-Activity Cycle]." (Shannahoff-Khalsa, 2001/2002, pp. 82-83) [emphasis added]

17.7.3. LEFT-RIGHT ASYMMETRY IN DISTRIBUTION OF SYMPATHETIC AND PARASYMPATHETIC (VAGAL) FIBERS TO THE HEART.

"[T]he right sympathetic trunk via the right stellate ganglion has relatively greater effect on HR [heart rate] while the left has relatively greater effect on left ventricular function. There are also right and left vagal [parasympathetic] differences; the right vagus has a greater cardiac deceleratory effect compared to the left vagus, and right vagal transection [cut] causes a greater cardiac acceleration than left transection [cut] suggesting the right vagus exerts greater restraint on the sino-atrial (SA) node than the left vagus. And the heart period is more prolonged when a stimulus is given to the right vagus compared to the left... [T]he sympathetic nervous system drives the ultradian [daily] rhythms of the heart... [T]he ultradian rhythms of HR [heart rate] are also governed by the alternating rhythmic influences of the right and left branches of the ANS [Autonomic Nervous System] with increased HR resulting from right sympathetic with left parasympathetic dominance... [R]ight UFNB [Unilateral Forced Nostril Breathing] increases heart rate compared to left UFNB which lowers HR... [S]troke volume is higher with left UFNB and... left UFNB also increases end diastolic volume... [R]ight UNFB produced a 37% increase in baseline oxygen consumption and... left UFNB produced a 24% increase and alternate nostril breathing increased baseline values by 18%." (Shannahoff-Khalsa, 2001/2002, p. 84-85) [emphasis added]

17.7.4. CENTRAL NERVOUS SYSTEM-COGNITIVE EFFECTS OF UFNB (UNILATERAL FORCED NOSTRIL BREATHING)

""The [Nasal Cycle] NC is a marker of a rhythmic and alternating shift of lateralized autonomic function that co-regulates lateralized rhythms of the central nervous system (CNS)... The nasal mucosa are highly innervated with fibers from the autonomic nervous system (ANS) and the dominance of sympathetic activity on one side produces vasoconstriction, while the contralateral nostril exhibits a simultaneous parasympathetic dominance causing partial occlusion... Yogis called this...a marker of the balance of 'ida and pingala' and in Chinese medicine it is described as the balance of 'yin and yang.'... [R]eceptors in the nasal mucosa register the flow of air across the membranes (unilaterally) and transmit this signal ipsilaterally to the hypothalamus... the highest center for autonomic regulation." (Shannahoff-Khalsa, 2001/2002, pp. 80-81) When the mucosa are anesthetized these selective effects on EEG are eliminated. [emphasis added]

UFNB can selectively stimulate the opposite hemisphere producing relatively greater EEG power. "[T]he electrographic activity generated by nasal (versus oral) breathing is produced by a neural mechanism in the superior nasal meatus. This activating effect could also be produced by air insufflation into the upper nasal cavity without inflating the lung. Local anesthesia of the mucosal membrane suppressed the cortical effects of airflow stimulation... [L]ateralized EEG activity can be affected by unilateral nasal airflow... [R]ight nasal dominance is coupled to relatively greater verbal performance or left brain activity, and left nasal dominance with spatial or right hemispheric skills.... [R]ight UFNB increased left hemispheric cognition and... left UFNB increased right hemispheric cognition as predicted by yogis... [N]asal airflow may stimulate sympathetic dominance on the homolateral (ipsilateral) [opposite] body-brain half... [D]irect stimulation of one half of the cortex may occur by sympathetic stimulation and thus result in vasoconstriction... [I]ncreased parasympathetic activation may occur simultaneously in the contralateral [opposite] hemisphere to compensate for the contralateral sympathetic activation, thus helping to maintain

adequate but altered cerebral perfusion [blood flow]." (Shannahoff-Khalsa, 2001/2002, pp. 86-87) [emphasis added] The research results show a mixed results regarding the influence on cognitive tasks and across sex. Maybe breathing patterns only increase spatial rather than verbal skills.

17.7.5. CLINICAL APPLICATIONS OF UFNB (UNILATERAL FORCED NOSTRIL BREATHING)

ANGINA PECTORIS: "[D]iaphragmatic breathing with attention to both phases of respiration and the intervening pauses' coupled with 'alternately closing one nostril while inhaling slowly through the other' had profound effects on patients with angina pectoris... [T]he alternate nostril breathing technique directly effects the lateralized sympathetic and vagal [parasympathetic] input to the heart, thereby inducing a balance in ANS [Autonomic Nervous System] activity. This may help to reset the electrical patterns affecting the heart muscle and also to help achieve more normal blood flow to the heart muscle." (Shannahoff-Khalsa, 2001/2002, p. 88) [emphasis added]

OBSESSIVE COMPULSIVE DISORDER (OCD): "A left nostril specific UFNB breathing protocol from Kundalini Yoga meditation was compared with a group using a combination of the Relaxation Response for 30 minutes plus the Mindfulness Meditation technique for 30 minutes. The Kundalini Yoga breathing group improved on all the scales of the Yale-Brown Obsessive Compulsive Scale. The two groups were merged using the Kundalini Yoga breathing method. There was, over the second year of treatment, a 71% scale measured improvement, highly clinically significant when compared to current drug therapy (20% to 35% decrease in symptom scores). About one third of patients are "drug treatment resistant.... In responders, medication produces 'only a 30%-60% symptom reduction and patients tend to remain chronically symptomatic to some degree despite the best of pharmacologic interventions.." (Shannahoff-Khalsa, 2001/2002, pp. 90-91)

OCD people have right hemisphere abnormalities so left nostril specific UFNB breathing, which has a strong effect on the frontal and prefrontal right cortex (and maybe the right orbital frontal cortex which is the site of much emotional control in the limbic complex), may help to compensate for the OCD-related defect. (Shannahoff-Khalsa, 2001/2002, p.92) (See part 14.1 of this paper) [emphasis added]

17.7.6. CLINICAL EFFECTS OF UNILATERAL CHRONIC NASAL OBSTRUCTION

[xx]= translation into English, more or less

Patients with Unilateral Chronic Nasal Obstruction were predisposed to a variety of disorders and symptoms: "*Local disorders:* nasal respiratory insufficiency, hypertropic rhinitis [increased inflammation of lining] of the obstructed nostril and allergic disorders. *Neighboring disorders:* spontaneous painful sensitivity in the periphery, sinusitis [inflammation of the sinus], catarh [catarrh - inflamed mucous membrane with discharge] of the Eustachian tube, hypacusia [hyperacusis - sounds perceived as unduly loud] and otorrhea [ear discharge], bronchorrhea [abnormally profuse watery secretion from the bronchi] all on the obstructed side. *Distant disorders:* intellectual asthenia [loss of energy and strength and feeling of weakness] with frequent amnesia, headaches, hyperthyroidism [excessive secretion by thyroid of thyroxine and/or triiodothyronine, increase oxygen consumption, accelerated basal metabolic rate, thyroid enlargement leading to weakness, weight loss and nervousness], cardiopulmonary [heart and lungs] asthenia [loss of energy and strength] with tachycardia [fast heart rate] and asthmatic disorder with

sometimes hypertrophy [increased size] of the left cavity of the heart and pulmonary emphysema [lung dilation of the alveoli -small cells- and bronchioles - small branches of the pipe- with destruction of their walls], hepatic [liver] and gall bladder, gastritis [inflamed stomach lining], enterocolitis [inflammation of the mucosa of both large and small intestine], sexual disorders, dysmenorrhea [painful menstruation], and decrease of virility." (Shannahoff-Khalsa, 2001/2002, pp. 94-95, *italics added*)

18. EYE AND HEAD POSITIONS AND MOVEMENTS, AND EYE BLINKING

18.1. EYE AND HEAD POSITIONS AND MOVEMENTS

From its inception, the NLP (Neuro Linguistic Programming) approach has used eye positions (eye accessing cues) to determine how an individual is processing information. In a sense, the eyes were considered a "joy stick to the brain." (Brooks, 1989, ch.7; Lee, 1990, pp. 93-97; and Lewis and Pucelik, 1982, ch 4). In addition, the One Brain system (Stokes and Whiteside, 1984/1987, 1986) attributes specific broad emotions or states of being to specific eye positions. The research being done by Don Elium's Integrated States research group added head positions as another indicator ("joy stick") for assessing what they refer to as neuro-energetic dissociated aspects of the person/system. With 9 each of eye and head positions, there are a total possible 81 combinations (9x9).

From Kundalini Yogic tradition there is an Pranayam meditation technique, described as the ultimate by Shannahoff-Khalsa. It involves a sitting posture (asana), hand position (mudra), and breathing pattern . "The eyes are open and focused at the tip of the nose -- the end that you cannot see. This eye posture is also called Ajna Band which means mind lock and one effect of this eye posture is to stabilize the frontal lobes... Focusing the eyes in this way pressurizes the optic nerve and helps to stabilize thought processes. It is a common element with meditation techniques that are used to tranquilize the mind." (Shannahoff-Khalsa, 2001/2002, pp. 99-100)

Furman (Furman and Gallo, 2000, pp. 239-251) has summarized how eye and head movements are related to the brain functioning and information processing. The following discussion refers to a normally right handed person.

"The eyes, the only part of the brain visible to the outside world, are the windows to the brain and its activity... [Furman's proposal is to track] the correlation between... eye movements and the localized brain activation that subserves them. It is in studying this localized brain activation that clues are revealed as to what areas of the brain are being used." (Furman and Gallo, 239-240).

The question is "What causes our eyes to move when we think? Our eye movements are part of a functional synergy; where our eyes move, our head follows. Therefore, eye movements by themselves only tell part of the story of internal cognitive functioning. We must also understand what happens physiologically in our brain when our head moves. The coordination of eye, head, and hand movement is under the control of the *superior colliculus*, an area of the brain stem. This structure possess a spatial map of visual, auditory, kinesthetic (somatosensory), and motor activity so that all the senses can be coordinated together in space... This and other related brain functions are... responsible for the reconstruction of the external world as an internal representation. It allows us to reproduce that world in an accurate, body-centered, spatial representation... [O]ur eye

movements both help activate the correct cortical area via the vestibular [balance] system as well as maintain spatial location of the representation via the visuoparietal-prefrontal cortices... [E]ye movement activates the vestibular system to move the head in certain optimum positions so that increased blood flow and oxygen can be maintained to the part of the brain being activated. This means that when one looks up in order to visualize, optimum blood flow increases in the visual cortex toward the back of the head due to gravity... Gravity is a source of mechanical disequilibrium needed for pattern formation... and it creates a sustained asymmetrical distribution of matter and energy in the brain, which is necessary for the replication of previously incorporated patterns..." (Furman and Gallo, pp. 241) [emphasis added]

"Neurophysiologically, it is nearly impossible to internally replicate certain [sensory] mode-dependent information without the appropriate eye and head movement... much of this movement is controlled via the brain stem. [E]ye positions indicate initial activation, maintenance, and transmission of an image... [W]hen the person holds or maintains that image in mind, [they] can move (transmit) it to virtually any part of [their] visual field, paradoxically over-lapping with auditory and kinesthetic [eye] cues... Therefore, upon activation... the eyes move up and... the head moves back to allow gravity-assisted regional cerebral blood flow to increase to the visual cortex. This... temporarily boosts the energy level of the visual neural networks needed to assemble the image (replication). Once the image is assembled, it can be moved (transmitted) to the prefrontal cortex... and projected to almost any area in the visual field. The nerve cells that hold (encode) this image are the *pyramidal cells*... any of the pyramidal cells in this area can be selected by the brain to represent this image. This means that an image initially generated in the upper portion of the visual field can be expanded or contracted and moved to virtually any location... Without this flexibility, thinking as we know it would not be possible." (Furman and Gallo, p244) [emphasis added]

"As a previously replicated image is now transmitted... from one portion of the visual field to another, different aspects of sensory representation are enhanced. Physiologically, information from the sensory systems overlaps. This is why in some portions of the visual field, one can just see a picture very well; while in other portions of the visual field, the visual and auditory portions of the experience are replicated equally well... The enhancement of visual, auditory, and kinesthetic signals is made possible by nerve cells in the brain, *bimodal* and *trimodal neurons*, which combine and integrate sensory information from more than one system... As one slides an image over specific receptor fields of bimodal or trimodal neurons... different combinations of auditory, visual, and kinesthetic information are enhanced... If we were to divide the visual field into three horizontal sections (upper, middle and lower), when the eyes are in the uppermost section, visual information patterns will overlap with auditory information patterns that originate from eye level and above, and also will overlap with kinesthetic information patterns originating from the upper head area... As the eyes move into the middle area... we are now able to enhance auditory sensory information that originated from ear level down to approximately the level of the sternum, and kinesthetic information becomes enhanced from ear level to just below the shoulders and upper chest... As the eyes are moved down to the lowest portion of the visual field, we are able to clearly 'tune in' or enhance auditory and kinesthetic information of the upper chest down. This is why we so commonly notice kinesthetic accessing to be down, as most of our feelings -- emotional, tactile, and motor (somatosensory and proprioceptive systems) -- will be generated between the upper chest and our feet." (Furman and Gallo, p 245) This is the basis for my saying "the eyes are a joy stick to the

brain" and why eye and head movement work (REB Module 6) is so effective in cleaning up remaining aspects of the issue.

"Eye movement is the lead system for vestibular functioning. Our eyes help us maintain head position and balance, and wherever our eyes move, our head and body follow.... [T]he brain is divided into right and left hemispheres. Each hemisphere has a different cellular structure allowing for different types of function. Our eyes will move left and right depending upon the cortical function... we need to perform... Brain cells in the right visual hemisphere [responding to stimuli in the Left Visual Field = LVF] have very broad overlapping receptor fields. Because these receptor fields are so broad, fewer are needed to encode an image that in the [left visual hemisphere responding to stimuli in the Right Visual Field =] RVF. In the RVF [left hemisphere]... the receptor fields of brain cells in the [left] visual cortex are much smaller and no overlapping... [Thus] the processing speed of the LVF [right hemisphere] will be faster... because less neurons are involved in the encoding and decoding process... Since the speed of image replication is faster in the LVF [right hemisphere] than the RVF [left hemisphere], any retrieved image will assemble quicker with less energy expenditure in the LVF [right hemisphere]... This is why we notice memory being frequently accessed upper left [right hemisphere accessing]... PET scans have... verified that regional blood volume increases in the right prefrontal cortex during retrieval (replication) of a memory, and the left prefrontal cortex during encoding (incorporation) of sensory information."(Furman and Gallo, pp 247-8) [emphasis added]

"Since the right visual cortex [accessing the LVF] is made up of overlapping receptor fields, it is possible to encode and decode (incorporate and replicate) three-dimensional images. The left visual cortex and RVF are not adept [at this]... because the receptive fields are non overlapping. The LVF [right cortex] also incorporates and replicates moving images... more efficiently... Replicating motion again requires overlapping receptive fields. Since the LVF [right hemisphere] is made up of broad receptors... images are very coarsely tuned with low degree of detail (low resolution). As a person is asked questions that require greater visual detail, [they] will move the image (transmitting it) to the [RVF left hemisphere]." (Furman and Gallo, p. 248) This involves a two step process; the image area is identified and then put into the RVF (left hemisphere), utilizing nerve cells with a slow processing speed and high resolution of detail. This process is possible because different neural networks can represent the same information.

The hemispheres also differ in their ability process color: left processes color best; right processes black, white and gray best. Creative recombinations are more possible in the left hemisphere since it has non overlapping receptors; thus pieces are easily separated and recombined independently. (Furman and Gallo, p. 248-249)

"In order to properly calibrate unconscious cognitive activity... eye movements alone do not tell the entire story... [We need to understand] how head movements, both vertical and horizontal, act in functional synergy along with eye scanning patterns..." (Furman and Gallo, p. 249)

The eyes also help differentially access the right and left auditory fields. "[T]he left auditory/visual field indicates phonetic, sequential, and rhythmic processing, while the right auditory/visual field processes the analogical components of language and sound... Analogical changes in elements such as pitch and inflection are decoded... when the eyes move toward the right auditory/visual field [accessing the left cortex] (located at the right, middle region of the visual field). These auditory

functions are carried out by the *Wernicke's area*, which deals with meaning and understanding." (Furman and Gallo, p. 250)

There is also a third auditory eye position down and to the left. This accesses the *Broca's area*, which deals with speech. "As the right-handed person looks down to the left and tilts [their] head in the same direction, the change in head orientation facilitates a gravity-assisted, regional cerebral blood flow increase within Broca's area, making it easier to construct speech... [W]hen the eyes move down and to the left we are accessing... articulator motor patterns which help to translate... an internal auditory image of 'dialog' into jaw, tongue, and larynx movements... the kinesthetic/motor counterpart to auditory internal dialog... [Sometimes] when a person's eyes are positioned down to the left, his lips and larynx may exhibit unintentional leakage of the actual words he is in the process of thinking about." (Furman and Gallo, p. 250)

The kinesthetic eye position, usually down and to the right for most right-handed people, "... helps us to enhance information coming from the dominant somatosensory cortex which is located in the right hemisphere... [W]hen a person's eyes move down and to the right, [their] head also tilts down in that direction thanks to the vestibular system. This head orientation with respect to gravity assists a temporary regional cerebral increasing in blood volume to the *somatosensory cortex*. This cortical area is responsible for collecting all transmitted motor, tactile, vestibular, and emotional (biochemical) information from inside the body and relaying (transmitting and translating) it back into other relevant cortical areas for cognitive representation (replication). As the eyes move down and to the right, information carried by these pathways from the upper chest and below becomes enhanced." (Furman and Gallo, pp. 250-251)

18.2. EYE BLINKING

Elium's approach uses eye blinks to defuse distress. This is also used by the Rapid Eye Technology (RET) approach (Johnson). According to the RET website "Recent [I downloaded 2001 Dec] research has found that blinking creates a momentary increase in alpha brain waves, which are associated with relaxation. Some eye movement researchers [Tece, 1992] theorize that blinking provides a moment in which the brain stops taking in information in order to reflect upon or process what is has just perceived or experienced."

In North America, Joseph J Tece (Tece 1989, 1992; Tece, Savignano-Bowman and Cole 1978) has done considerable research on the phenomena of spontaneous eyeblink activity. "The average human rate is approximately 15-20 bpm [blinks per minute]... Since normal adults need only 2-4 bpm to keep the eyeball moist, most blinks are physiologically unnecessary. Furthermore, since blind individuals have the same blink rate as sighted individuals, the significance of blinks goes beyond visual functions... Activities requiring complex thinking... tend to increase blink frequency. Doing two tasks at once... increases blinking. An important aspect of these tasks is the inward direction of attention to cognitive functions. Vocalization also increases blinking... This effect of vocalization suggests that blinking can be an indicator of generalized muscle tension and an expression of released motor tension... During reading, blinks appear at strategic points... These blinks may indicate a pause in the processing of information and may be a signal for the brain to rest between information inputs... Blinks also occur just before or after difficult parts of a task, possibly facilitating an erasure function by eliminating remnants of older information and preparing the brain for newer information." (Tece, 1992, pp 376-377) [emphasis added]

"Increased blink frequency generally reflects negative mood states... Blinking increases during heightened time pressure or when addressing a large audience... the blink-stress association... Eyeblink storms [rapid bursts of blinks] reflect underlying nervousness and fear and often accompany stuttering, which is also an apparent indicator of apprehension. Blinking increases when errors are made in memorizing digits, just before a decision is made to quit a difficult problem-solving task, and during poor performance... all situations conducive to negative mood states... Slower blink rates are observed during positive mood states... [such as] during successful problem solving and during simple repetitive thoughts... These relationships... support the hedonia-blink hypothesis, which states that increased blinking accompanies unpleasant feelings and decreased blinking accompanies pleasant feelings... This information on cognition and mood leads to a two-factor theory of blinking: (1) Blink frequency is increased during unpleasant mood states and is decreased during pleasant mood states (hedonia hypothesis). (2) Blink frequency is increased when attention is directed inward and is decreased when attention is directed outward (attention hypothesis)." (Teece, 1992, p. 377) [emphasis added]

"In summary, eyeblink frequency is a simple, reliable, and accurate indicator of anxiety and other negative hedonic experiences associated with psychological disturbance. As such, it is a potentially useful and currently under used measure of cognitive-affective processes... Eyeblink frequency is an accurate indicator of psychological disturbance in normal and clinical populations..." (Teece, Savignano-Bowman and Cole, 1978, p. 755, 757) There is also a relation between heart rate and eyeblink frequency. Negative hedonic state (negative arousal) involves increases in both heart rate and eyeblink frequency. Positive hedonic state (positive arousal) involves increased heart rate and decreased eyeblink frequency. (Teece, Savignano-Bowman and Cole, 1978, p. 757) [emphasis added]

An item in Newsweek, 1996, Oct 21 stated: "According to Boston College neuropsychology professor Joe Teece, stress levels can be measured by counting the number of times a minute people blink. The normal blink rate for someone speaking on TV is 31 to 50 blinks per minute (bpm). In the presidential debates, Clinton averaged 99 bpm (in the '92 debates he averaged 43 bpm) to Dole's incredible 147. Clinton peaked at 117 when asked about teen drug use. Dole peaked at 163 when asked whether the country is better off now than it was four years ago. According to Teece, the faster blinker has lost every presidential election since 1980. 'This is called the "Nixon Effect'."

Japanese researchers are particularly active in exploring the relation between eyeblinking and psychophysiological states. Nisio's (1999) system of indices for evaluating real-time distress selected three human physiological measurement factors: electrodermal activity (GSR), eye blinking, and blood pressure. According to Nisio, electrodermal activity reflects the person's emotional state and blinking reflects their psychological state. He continuously measures blood pressure to evaluate the state of the autonomic nervous system. This system allows the person's overall state to be investigated from various angles. The researchers Yamada and associates and others have a number of papers dealing with eye blinking.

Most of these researches do not deal with using eye blinking as a method of distress reduction although the finding of increased blink rates under stress implies that it serves as a natural mechanism for dealing with the stress. The REBSM Module 3e has eye blinking as an additional

way to reduce stress along with the squeezing and rocking (3d) and deep breathing through the nose (Module 4).

19. ACCESSING THE BRAIN HEMISPHERES

In Ogden and Minton (2001) Somatic Sensory method, the coach/therapist, by facilitating the client's mindfulness of bodily symptoms and sensations, fulfills the role of Porges' Social Engagement System which gives humans immense flexibility of response to the environment; in other words, the coach/therapist ("healer") becomes an 'auxiliary cortex' for the client. This cortex, it seems, is lateralized into more and less competent or mature modes of functioning which depend on the issue being dealt with in a session. The goal is to identify this in the individual and use it to facilitate transformation. Again, the overall goal of a session or a course of therapy is to have both halves of the brain achieve a similar felt sense of the issue.

19.1 THE RIGHT ORBITOFRONTAL CORTEX

The right orbitofrontal area is a major focus of theory and research

REBsm Module 2 introduces this intervention. The overall goal of a session or a course of therapy is to have both halves of the brain achieve a similar felt sense of the issue. Thus, one of things to check for is a dissimilar experience either when checking the hemisphere (Schiffer) or eye (One Eye Technique).

19.1.1. MASTER REGULATOR OF THE BRAIN AND BODY; Carol J. Schneider, (1997)

"Allen Schore...has developed a coherent and integrated neuropsychological mode of the *location, development, and mechanism* of the self. The *primary location of self* is in the slightly enlarged right orbitofrontal cortex which is on the underside of the brain immediately above the nasal olfactory tract, and is intimately connected as the anterior [front] aspect of the limbic system." (Stroebe,1997 p.1) [emphasis added]

"The *development of self* takes place in the memory banks of a child's right orbitofrontal cortex... Because they are based on imprinted, as opposed to conventional memory, self concepts are relatively impervious to significant alteration... Development of self seems to parallel some aspects of chaos theory, where there is an unusual sensitivity to initial conditions; namely the influence of the mother-caregiver... Orbitofrontal 'memories' and neurotransmitter templates from critical early experiences operate as algorithms for recognizing, interpreting, regulating, orchestrating and producing emotional behaviors... [T]his orbitofrontal locus of emotions and their memories has extensive interconnection with cognitive, sensory and motor neocortex elsewhere in the brain..." (Stroebe,1997 p.11) [emphasis added]

"A biologically distorted self, riddled with developmental lacunae has major implications for treating what will become viewed as disorders of self-regulation, including anxiety, panic, phobias, hypochondria, somatization, affect dysregulation, and psychosomatic conditions.... Neuropsychimmunology research implies that 'every cell in the body can talk to every other cell.'" (Stroebe,1997 p.12) [emphasis added]

19.1.2. NEUROBIOLOGY OF THE SELF; Charles F. Stroebel, 1997

"Allen Schore...has developed a coherent and integrated neuropsychological mode of the *location, development, and mechanism* of the self. The *primary location of self* is in the slightly enlarged right orbitofrontal cortex which is on the underside of the brain immediately above the nasal olfactory tract, and is intimately connected as the anterior [front] aspect of the limbic system." (Stroebel, 1997 p.1) [emphasis added]

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19.1.3. OBSERVATIONS ON TRAUMATIC STRESS; Robert C. Scaer, 1997

"...[U]nresolved trauma results in continuing ANS [autonomic nervous system] imbalance involving sympathetic or parasympathetic arousal or both at the same time." (Scaer, 1997, p.7) [emphasis added]

"...Allen Schore has outlined...the psychobiology of early childhood development involving maturation of orbitofrontal, and limbic structures based on reciprocal experiences with the care giver. Dysfunctional associations in this dyadic relationship result in permanent physiolchemical changes which have implications for personality development as well as a wide variety of clinical manifestations. An intimate relationship may exist between traumatic parent/child interactions and autonomic nervous system (ANS) hyperarousal. Thus, persisting hypertonicity of both branches of the ANS -- the parasympathetic and sympathetic nervous systems profoundly affects the arousal state of the developing child. This overarousal phenomenon also occurs in the adult traumatic experience." (Scaer, 1997, p .4)

"Peter Levine developed a... model of the *fight/flight/freeze* response seen in animals in response to *life-threatening experiences*... If the animal survives the attack, it will go through a *dramatic period of discharge of this high level autonomic arousal through the motor system*. This discharge involves trembling, running, shaking, profuse sweating and deep breathing. Following this, the animal will return to its prior state of calm alertness... [T]he human species... usually will not discharge this high state of autonomic arousal after the freeze response in the face of severe trauma, but will

suppress this discharge phenomenon, resulting in storage of a high state of autonomic arousal probably in orbitofrontal, limbic and procedural memory systems of the brain. Memory mechanisms in trauma probably involve both explicit (conscious, declarative) and implicit (unconscious, non-declarative) memory. Procedural memory is a form of implicit memory involving learned sequences of synchronized motor acts... Once learned, these motor sequences are stored with a high degree of recoverability probably in orbitofrontal and limbic, as well as cerebellar, vestibular and basal ganglia connections of the brain... [M]emories of the motor sequences of a traumatic experience may well be stored in this memory system... [B]y accessing the 'felt sense'... the individual may then access complex patterns of movement representative of prior traumatic experiences, may activate the sympathetic nervous system, and lead to a discharge of retained autonomic energy through the somatic/motor system..." (Scaer, 1997, p.4) [emphasis added]

Thus movement in some manner is critical in psychotherapy.

19.1.4. HOW ARE OUR 'HEARTFELT' FEELINGS GENERATED?

Robert C. Scaer and Carol J. Schneider 2002

"... Childre and McCraty [of the HeartMath Institute] present the heart as a key point of entry into the psychophysiological networks that comprise the emotional system... [T]he continuous interplay between emotion and the organ systems innervated by the vagus nerve create an interactive environment that changes both the regions of the brain involved, and the visceral organs that provide sensory input, including, but not restricted to the heart. The body and the brain are one organ in this model, and the heart may play a special role, but many other organ systems likely also contribute to this process in exactly the same manner... Childre and McCraty argue that the heart is the *source* of feelings of love, care and compassion... However... the ability to have empathy, care and compassion for others is profoundly impaired by damage to the right orbitofrontal cortex.. (Scaer and Schneider 2002, p. 4) [emphasis added] This is why the REBSM emphasizes giving positive sensations/emotions to the system, especially the heart, when ever there is a shift in the felt sense. [emphasis added]

"...[T]he mediation of the right orbitofrontal area is necessary for the experience of empathy....A well developed emotional brain potentiates autonomic regulation by the right orbital frontal cortex. Poor development of this area results in poor attachment and bonding, problems with empathy and compassion and sets us up to have one or more serious physical illnesses once we are exposed to... traumatic experiences..." (Scaer and Schneider 2002, p. 5)

J.C. Pearce, in The Biology Of Transcendence, "... goes astray in his concepts of the heart-brain connection as being the '5th' brain, operating both on a physical and neurologic basis. He [and HeartMath theory] connects the heart to the brain from the theoretical basis that the heart contains the same neurological tissue as does the brain itself, and that the communication between the heart and the midbrain act as a shunt, delivering messages to the most advanced brain or the prefrontal cortex. " (Scaer and Schneider 2002, p. 5)

"... [The] vagal functions of the brain stem or 'reptilian brain,'... from Steven Porges' view may be essential for the evolution of bonding and... love. Studies of the afferent [to the brain] vagal pathways from the viscera to the nuclear solitarius suggest intimate connections between that nucleus and the amygdala as well as the hippocampus, suggesting that visceral afferent stimuli may

play an important role in consolidating arousal-based memories ('gut feelings'). Such input is also provided from the heart through afferent pathways to the nucleus solitarius. Indeed, in this manner, the heart should provide input to arousal-based centers of the brain, which will then activate orbitofrontal cortex activity whose primary purpose is to regulate the autonomic response to any of these messages that are threat based." (Scaer and Schneider 2002, p. 5)

"Pearce implies that nurturing of the prefrontal cortex comes from nurturing of the heart, requiring physical closeness to the mother's heart from birth on. Scientific studies of brain regions related to nurturing and social bonding, as well as maternal bonding, however, suggest that this nurturing of the prefrontal cortex probably takes place within the anterior cingulate cortex, as part of the limbic system. The anterior cingulate area is closely tied into messages from the locus ceruleus regarding threat-based information. The cingulate appears to provide a gating mechanism of fear conditions...The orbitalfrontal cortex acts in response to threat-based messages, dampening the amygdala response, and providing modulation of the anterior cingulate as well... in the manner that Pearce ascribes to the 5th brain heart. The right orbitofrontal cortex is also involved in generating experiences of joy and connection to the other..." (Scaer and Schneider 2002, p. 5, 7)

The question becomes how best to re-educate the right orbitofrontal cortex and in general the right brain's emotional processing system including the "smart vagus." The REBsm, in agreement with the HeartMath approach, feels the most powerful approach involves bringing the heart into coherence. Since the heart is the most powerful bio-oscillator in the body, its psychophysiological state has the most impact on all areas of the body, including the brain. This is why the REBsm emphasizes giving positive sensations/emotions to the system, especially the heart, whenever there is a shift in the felt sense.

19.2 ACCESSING THE MORE RESOURCEFUL HALF OF THE BRAIN

19.2.1. SCHIFFER MODEL

Schiffer (2000 quotes are from the web) developed a simple and elegant method whereby the person can perform this function for themselves. Again, this has been incorporated in the comprehensive REBsm protocol in Module 2 (see section 4.2). Sargent (1999) provides protocol using NLP approaches. This is introduced later in this section.

"... [T]raumatic memories are associated more with one hemisphere (left or right), than the other... [M]any patients among a range of psychiatric diagnostic categories, but especially posttraumatic stress disorder and major depression, have two very different, intact ways of seeing themselves and their world, each with congruent cognitions and affects. One view is generally similar to the way the patient saw the world as a distressed child; the second is generally a more mature, more realistic view of the present world... [E]ach of these views is associated with one hemisphere and that lateralized sensory stimulation, which has been know to affect relative hemispheric activity, can induce shifts in the patients mental perspective. For instance,... clinically and in the laboratory,... lateralized visual stimulation can cause marked changes in a patients disposition from immature to mature or vice a versa. This theory of dual mental states may be a guide to understanding patients and helping them overcome their traumas... [L]ateralized sensory stimulation can be used as an effective adjunct to psychotherapy..." [emphasis added]

"In ... Schiffer (1997),... limiting vision to the left or right lateral visual field (using taped safety goggles allowing vision out of only the lateral third of one eye...) and comparing anxiety levels from one side to the other revealed that 42 (60 percent) of 70 psychotherapy patients experienced at least a 20% difference in their anxiety levels between sides and that 38% of these 42 patients reported at least a 40% difference. The side on which the great anxiety was experienced varied between diagnostic groups. Among 21 patients with major depression, 71 percent had at least a 20 percent difference in anxiety levels between sides and of these 73 percent felt more anxiety when looking to the left visual field (right brain). Among 18 patients with posttraumatic stress disorder, 78 percent reported at least a 20 percent difference between the two lateral visual fields, but the majority, 71 percent, experienced more anxiety when looking to the right visual field (left brain)."

"In anecdotal observations (Schiffer, 1998), I [Schiffer] reported that many patients who had intense affective responses to lateral visual field stimulation reported not only differences in anxiety, but also often reported dramatic cognitive changes congruent with the affect changes. Repeatedly, I observed, in responsive patients that they reported very different perceptions of their sense of their inherent value and of their sense of their safety depending on which lateral visual field they were looking from. Many of these anecdotal reports include transcripts (Schiffer, 1998) from sessions with patients while they wore different lateralized goggles, and they are notable for the psychodynamically relevant effects which have frequently been observed. For example, typical very responsive patients might report that they believe they are stupid and lazy on one side and within seconds of changing glasses will feel that they are ambitious and intelligent. Their opinion on the negative side is consistent with what they were told as children by abusive parents. Some patients have reported feeling that I was expressing negative affect towards them on one side but not the other. In these cases, I have asked the patient to look at a photograph of a famous person, and he or she felt the expression in the photograph changed depending on from which lateral field it was viewed. The side which saw the photograph as troubling was the same which saw me in that manner...."

19.2.1.1. THEORETICAL IMPLICATIONS

"The observations of marked changes in cognition and affect in response to lateral visual stimulation, which has been shown to shift hemispheric dominance,... [imply] that the induced changes in mental status are related to the induced changes in relative hemispheric activation. A common observation in responsive patients is that lateral visual stimulation will on one side evoke a relatively mature psychological perspective and that stimulation of the opposite side will evoke a relatively immature perspective related to traumatic experiences the patients had in their childhoods. In light of the split-brain studies which have demonstrated the ability of each isolated hemisphere to be capable of a high level of independent mentation, and in light of [the]... finding of a high level of psychological change induced by lateral field stimulation, [it seems]... that the lateral visual stimulation alters hemispheric dominance which leads to a change of psychological status... [C]linical observations that patients very often had a fairly intact, internally consistent immature psychological aspect as well as a more mature contrary aspect may relate to... observations following lateral visual field stimulation, and that each hemisphere may be associated with psychological traits differing in their level of psychological maturity and in their associated perspective on past traumas." [emphasis added]

"Thus,... the human mind [has]... a major division between two intact perspectives one more mature and realistic and one more childlike with perspectives related to past traumas, holding on to misperceptions that the world remains dangerous and rejecting as it once was. The relationships between these two mental aspects can be varied and complex. At times one might dominate or sabotage the other, or they might cooperate. When the immature aspect dominates, the person might be seen clinically as 'regressed.' If the mature side suppressed the troubled side, and the person might be seen as 'repressed.' At times the immature side may act covertly as an 'unconscious mind' inducing 'neurotic behaviors' such as airplane phobias which are experienced but not easily understood by the person. In this view, an 'interpretation' is the decipherment of the thoughts and feelings of a troubled, less mature mind working covertly beyond the awareness of the consciousness of the more mature side. At times when the immature side is the dominant, conscious mind the patient may be seen as having a 'personality disorder' and as 'acting out.' 'Transference'... is the relationship between the immature side of a patient's personality and the therapist."

"... [T]he immature side maintains a perspective very similar to one consistent with that which a child in a troubled circumstance might be expected to experience... Patients with posttraumatic stress disorder in my [Schiffer] practice have been the most responsive group to lateral visual stimulation, but other patient groups have also been responsive.... [T]he great majority of psychological problems are due to traumas which can range from a relative neglect to extremes of abuse, and so [we] would expect this trauma based hypothesis to relate to a very wide range of psychological problems. Certainly profound abuse will have different consequences from less severe traumas, but... findings suggest that all types of abuse could have some tendency to relate to one hemispheres more than the other, at least in the large number of patients who have typical, intense responses to lateralized stimulation."

19.2.1.2. CLINICAL IMPLICATIONS

"There are two aspects to the ideas... and both have clinical relevance. The *first* is the general psychological theory that most people have a mature and an immature part to their personalities. This hypothesis has usefulness in our attempts to understand human behavior and to assist people with their psychological problems. This conceptualization of the mind allows the theoretical insights described in the previous section. It formulates psychopathology as usually coming from an immature aspect which still believes it is in the midst of a traumatic experience. Psychotherapy is then conceptualized as the teaching of this troubled, immature aspect, that it is in fact safer and more valued than it has realized. Usually the troubled part of the personality does not realize that a new, more mature, more realistic part of the mind has come into existence since childhood. The therapist can help the patient find and use this more mature part of the patient's personality to help the troubled part. Regarding the troubled aspect as a well developed mental entity with its own thoughts and feelings, allows the patient and therapist to more concretely and directly address, communicate with, and then teach this more childlike aspect... I [Schiffer] often talk directly to the immature aspect of the patient, and this not infrequently evokes an almost immediate improvement in the patient's mental state. This improvement, though usually temporary, may be the inarticulate response of the immature aspect of the personality to my statements. The resolution of clinical problems can be achieved when the therapist and patient's mature side successfully teach the immature part that it is now in fact safer and more valued than it had believed based on past traumatic experiences. The establishment of a trusting, enduring, positive relationship between the

therapist along with the mature aspect of the patient and the immature aspect is necessary for this teaching to take place." [emphasis added]

"The dramatic psychological effects of lateralized stimulation are the *second aspect*. to have clinical relevance. First, these effects lend support for the hypothesis that the immature aspect of a person is a well developed cognitive and emotional entity with a perspective on itself and the world which is based largely on past traumatic experiences. This assertion is based on the fact that lateralized stimulation often evokes on one side a consistent perception in patients that they are deficient in value and safety. This view is consistent with their symptoms and with their past experiences."

"In addition to supporting the psychological hypothesis, the findings from lateralized stimulation, in... clinical experience, have had clinical value as an adjunct to psychotherapy. In patients who are responsive to the lateralized stimulation... allowing them to dramatically alter their perceptions of themselves and their world within seconds of switching the side of lateral stimulation is often remarkably helpful. First, such experiences force the patients to challenge their entrenched negative perceptions, for if perceptions can be so easily altered, their veracity requires reconsideration. Further, stimulating the positive aspect of the patients will offer them a direct experience of their positive value and safety. If [you] were to tell a person that he was valued and safe, [you] would not have the compelling power of the patients' seeing this for themselves. Lateralized stimulation appears to be a powerful adjunct for teaching the troubled aspect of the patient that they are truly valuable and safe." [emphasis added]

"... [A]s the troubled hemisphere improves, it forms a better relationship with the other side. In this sense the hemispheres become more harmonious or balanced, but such improvement is possible only after the troubled side becomes healthy enough to begin to engage in that relationship. This model resembles the relationship between a traumatized child and a therapist or a healthy parent." [emphasis added]

"[Some] patients... were able to access negative feelings only when they wore the lateralized glasses which evoked the negative side and this use has been helpful in responsive patients who tend to repress their affect. With other patients... the goggles... help them discuss traumatic events which would be too distressing to talk about without the aid of the comforting glasses. A number of patients have used the taped goggles at home usually as method for inducing a state of comfort and calmness, in a manner resembling the way some people use the practice of meditation."

19.2.2. SARGENT NLP MODEL

In the book The Other Mind's Eye: The Gateway to the Hidden Treasures of Your Mind, Sargent (1999) writes "you will learn how your brain codes information for emotional responses, and how to consciously access information stored in both hemispheres. You will also learn simple step-by-step techniques to help you use your entire brain to get what you want in life."

In the preface to the book, Sargent writes (quoted from web):

"Young Johnny is walking home from school when a car drives by and one of the teenage occupants of the car throws a water balloon that hits Johnny on his left leg. Instantly, two separate

impressions are simultaneously imprinted into Johnny's memory, one in the left hemisphere of his brain which is responsible for logical linear thinking, and another in his right hemisphere which is more interested in the processing of spatial relationship."

"These two related yet separate perceptions of the same event are emotionally coded according to the specific qualities and interests of each hemisphere of the brain. In the left hemisphere of Johnny's brain the information may be coded as a simple case of three teenagers who were bored and wanted to have some fun. With this understanding, Johnny is most likely going to continue on his way home, change into some dry clothing, get a snack, maybe do his homework, and go to a friend's house to play. Having this perception of the event, it is unlikely that Johnny will be affected in a way that is more than an inconvenience."

"In Johnny's right hemisphere, however, the same event could have a more far-reaching effect on him. His right hemisphere is more concerned with how he is personally involved in the situation and how it may affect his safety. His right hemisphere might perceive this event more like the following. Three big teenagers out to cause trouble drove by, selected him to terrorize, and threw something at him from a car. Next they drove off laughing at his misfortune, probably circling the block to get yet another shot at him. With this perception, Johnny races home, runs upstairs, and finds refuge in his room as the effects of the stress response fade and his body starts to return to normal. Not only has he lost his appetite for an after school snack, but also he is in no mood to do his homework. Even the possibility of going to his friend's house to play is out of the question, because the teenagers might spot him, and this time he might not escape so luckily."

"How Johnny actually responds to a situation similar to this one will generally be somewhere between the examples I have given, since the left and right hemispheres of the brain communicate information back and forth through a network of fibers in the brain called the corpus callosum. Information stored in Johnny's brain from previous experiences will also have an important influence on his response to this event."

"Since the most primary and vital functions of the brain involve survival and personal safety issues, the brain automatically responds to and evaluates events that might threaten a person's immediate safety. In most people, the right hemisphere of the brain stores emotionally charged memories, while at the same time, the left hemisphere records a relatively unemotional sequence of events. There are two separate and unique pictorial representations for each event in our lives for which an external visual stimulus has been imprinted."

"Think of how often we have heard the phrase 'I see it in my mind's eye.' Imagine how many possibilities will be opened up by understanding your 'other mind's eye.' When we recall an event with the right hemisphere's 'mind's eye' our response will be very different than if we recall it with the left hemisphere's 'mind's eye.' Each hemisphere of the brain records and recalls useful information. If we consistently utilize the perceptions from only one side of our brain, our choices are limited, often leaving personal issues unresolved. 'I have half a mind to...' is another phrase we often hear people use. If this is descriptive of what is actually happening in our thinking process, we may literally be using only half of our potential." [emphasis added]

"Learning how to have conscious control of which hemispheric image to utilize broadens the range of choices and responses available to us. Additional benefits result from being able to integrate information from both hemispheres when dealing with an issue."

Again, the comprehensive REBsm protocol uses the above findings, incorporated in Module 2 to more efficiently facilitate the transformation of negative to positive, immature to mature, and thus give people the freedom to progress in their lives.

19.3. THE ONE EYE TECHNIQUE of Cook and Bradshaw

The "One Eye Technique," described in the manual Toward Integration: One Eye at a Time, (Cook and Bradshaw, 2000) is an outgrowth of the use of EMDR. Cook discovered around 1995 that having clients tune into their issue with just one or the other eye often produced dramatically different narrations. So she began experimenting with doing EMDR on one eye at a time and eventually developed the "One Eye Technique." The technique involves first discovering if there are differences in the clients' experience when "viewed" from one or the other eyes. If so, there is a need to integrate these two "viewpoints" into one consistent view. This is possibly related to Porges' "smart vagus" model discussed in part 15 and the issue of the right orbital frontal cortex discussed above in part 14.1.

The technique emphasizes paying close attention how the eye tracks the lateral movement stimulus. If there is anything but smooth tracking, then this indicates a disturbance has been identified for the presenting issue. There are several of these eye movement disturbances:

- ∞ "Glitch" indicates a discontinuity when there is an intense reaction (psychophysical) when a certain point is reached in the visual track.
- ∞ "Hold" where the eye temporarily pauses while tracking the lateral moving visual stimulus.
- ∞ "Lock," similar to the "hold" except it is more permanent, occurs when the eye is moving across the visual field and suddenly ceases to track.

On pages 61-62 of their manual they discuss some of the proposed neurophysiology of the technique. However, because of the sensory anatomy of the retina, there is no isolation of the cortex when you close one eye. The left half of the sensory fibers of EACH eye go to the left hemisphere and the opposite for the right half. Thus, in terms of sensory input, each eye goes to each hemisphere. Interestingly, the motor control of the eye is controlled by its opposite hemisphere. Thus, the interesting question is: Why is there such a difference in some clients when they view their issue with one or the other eye closed? I don't know.

Cook states "I believe the value of exploring one eye at a time is not to explore personality within the mind [which Schiffer proposes] but to explore perspectives, emotions, body sensations and different SUDs [Subjective Units of Distress] levels from one side to the other... [When clients have different experiences with the different eyes] they may begin to understand *objectively* some of the experiences they are having *internally* around particular events... I [Cook] find that integration is a natural outcome of exploring the covering of one eye at a time." (Cook and Bradshaw, p. 62)

In the REBsm, when this difference between "viewpoints" arises, we can stop and check it and do some integration using relevant aspects of the protocol (Module 3d, 3e, 3f, 3g, and Module 6), The

goal is to have both "viewpoints" in agreement and equally in touch with the issue. It will be especially useful in Module 6 where the eye/head movements are explored.

20. THE ROLE OF the RADIANT CIRCUITS (STRANGE FLOWS, CURIOUS MERIDIANS) and the CONCEPT OF CHI and the CHINESE 'FIVE ELEMENT MODEL'

20.1 THE CONCEPT OF THE MANY TYPES OF CHI

Bruce Holbrook (in a special section of Dong and Esser, 1990, pp. 15-38) provides a summary classification of the types of Chi in Chinese theory. "The integrative energies fundamental to the continued potential of...the human organism are all recognized as forms of chi from the Chinese scientific perspective. It is *biological* chi, i.e., chi exclusive to living individuals, that is unknown to Western science." (p.19) "The Chinese scientific term for this basic bioenergy is *yuan chi*, 'original' chi. It is called original because it is (must be) present at the beginning of life, for it is plainly indispensable to living." (p. 21) "If innate chi is responsible for the formation and continued integrity of the organism, acquired chi is the quintessence of the organism's vital fuel. The first acquired chi received in a lifetime is extracted, by energy provided from the actualization of original chi, from the water (amniotic fluid) surrounding the fetus and the nutritive organic matter which enters through the umbilical cord. Note that without positing original chi, that is, a given energy, there is no way to account for initial metabolism of oxygen and food." (p. 30)

The "Chi Chart" on p. 22 of Holbrook's paper provides a classification system for western thought (i.e., me) (see my chi chart below).

CHI as "bioenergy" is made up of
Hsien-tien-de or "innate" chi and
Hou-tien-de or "acquired" chi.

These two combine to form **Ren** or "humane" chi ("empathic energy," part innate, part acquired through positive human interaction.) (maybe similar to the "smart vagus--social engagement system" of Porges)

Hou-tien-de or "acquired" chi divides into
Ta or "pneumatic" chi from air and
Gu or "alimentary" chi in food/drink

Hsien-tien-de or "innate" chi subdivides into
Tsung or "genetic" chi (formative, informational) and
Yuan or "original" chi (vital).

Tsung or "genetic" chi and **Yuan** or "original" chi combine with **Gu** or "alimentary" chi in food/drink and **Ta** or "pneumatic" chi from air to make

Jen or "true" chi. "[J]en chi is ...the nexus or synthesis, of the two types of innate chi and of the two types of acquired chi...'true chi' is the synthesis and quintessence of all the other kinds of chi..." (p. 32). "If true chi [jen] is the 'chi of chis' in the internal sphere, humane chi [ren] is the equivalent in the external one." (p. 35)

Jen or "true" chi divides into three types of chi:

Wei or "defensive",

Jing or "channel" and

Jeng or "disease combating" chi.

CHI "bioenergy"

<p>Hsien-tien-de or "innate" chi divides into ↓ ↓ ↓</p>	<p>Ren or "humane" chi ("empathic energy," ⇒⇒⇒⇒part innate and part acquired)←←←←</p>	<p>Hou-tien-de or "acquired" chi divides into ↓ ↓ ↓</p>
<p>Tsung or "genetic" chi (formative) and Yuan or "original" chi (vital) which combine to produce ↓ ↓ ↓</p>	<p>Ta or "pneumatic" chi from air and Gu or "alimentary" chi in food/drink</p>	
<p>Jen or "true" chi (which is also combined with Gu or "alimentary" chi in food/drink and Ta or "pneumatic" chi from air). Jen in turn produces 3 types of chi ↓ ↓ ↓</p>	<p>←←←←←←←←Gu and Ta acquired chi combine with Yuan and Tsung innate chi to produce Jen chi)</p>	
<p>1. Wei or "defensive" 2. Jing or "channel" 3. Jeng or "disease combating" chi</p>		

Figure 20.1 The organization of the types of Chi

"...[Y]et another meaning of chi, a cosmological one [is] often confused with the bioenergetic chi of chi gong, acupuncture, and herbal medicine." (p. 23) This chi concept relates to quantum and cosmological theory of western science.

20.2. INTRODUCTION TO THE CHINESE FIVE ELEMENT/MERIDIAN SYSTEM MODEL OF THE BODYMIND

The Chinese never had to deal with the "Mind-Body Problem" which the Western world inherited as Descartes' solution to the conflict ("turf war") between the church and the budding natural philosophers (Damasio, 1994). They also do not make the sharp distinctions between self and the natural and spiritual world. Thus, in the Chinese Five Element/Meridian System (energy pathways) model of bodymind functioning, the various organs are part of an energetic system of influence with ties to the external world and inner world of emotions and thoughts as well as the spiritual domain. They have no need for our hyphenated disciplines of "Psycho-Somatic Medicine" and "Psycho-Neuro-Immuno-Endocrinology." There was never any question of the mutual influence of these domains. Also, the model emphasizes balanced energy systems (correction for either over or under energy in each system). "Stuck Emotions" are typically a problem of over energy in a meridian. For a clear explanation of the holism of the model see Moss (1999) or Eckman (1996).

For the purposes of understanding the operation of Meridian Balancing Procedures for dealing with mental and physical distress, it is only necessary to understand how the various meridians are related to emotions and the "Control Cycle" of the "Five Element" organization of the meridians.

20.2.1. THE FIVE ELEMENT LAW

Energy flows in the CREATIVE (Sheng) and CONTROL (Ko) cycles:

The CREATIVE cycle goes from Wood to Fire to Earth to Metal to Water

The CONTROL cycle goes from Water to Fire to Metal to Wood to Earth

20.2.2. FIVE ELEMENT CHART

The "Five Element Chart" given below shows the relations between each of the five elements, their meridians, and the yin-yang meridians.

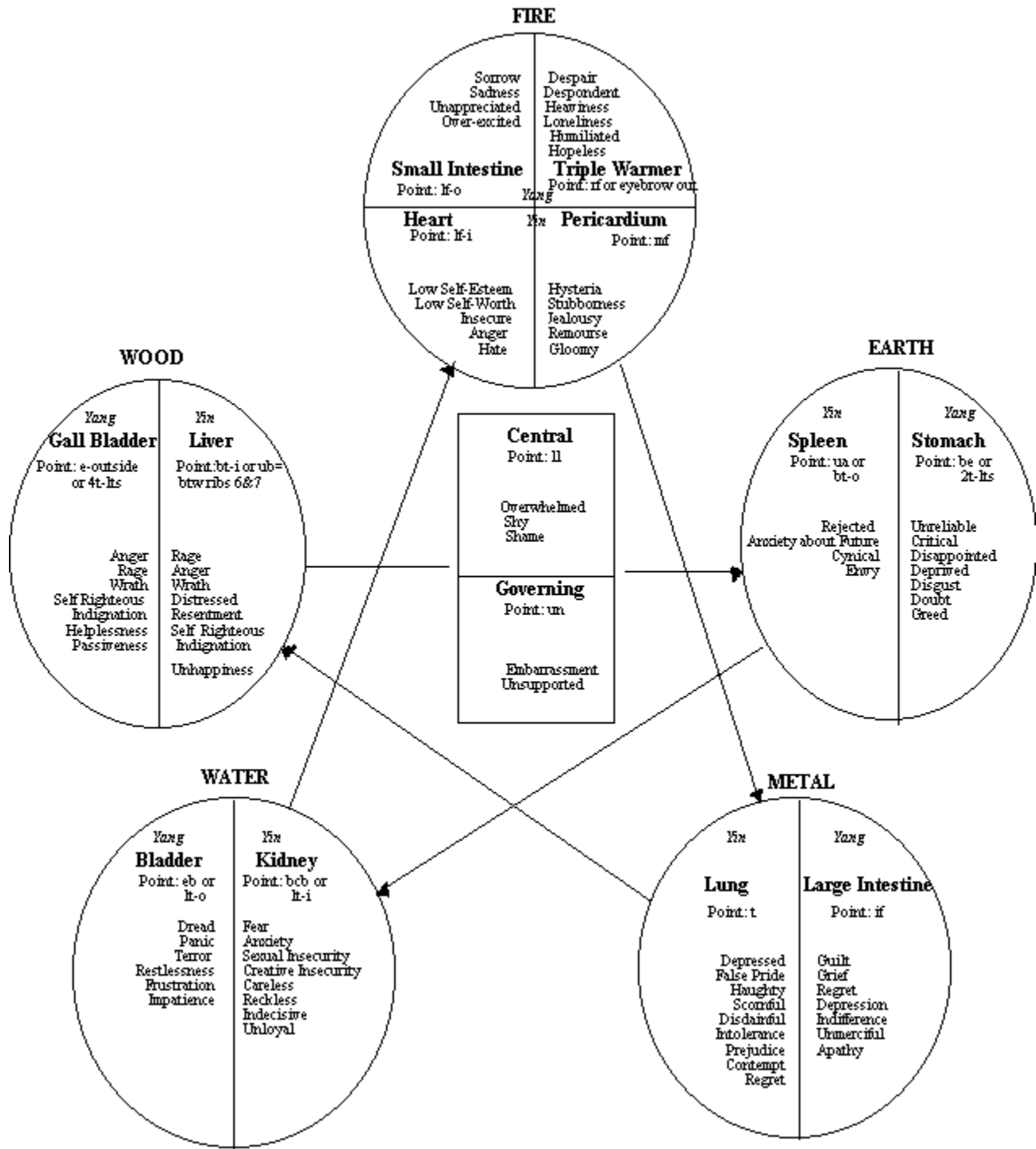


Figure 20.2 Five Element Emotion Chart Based on the Professional Kinesiology Practitioner (PKP) training program, 1990

20.2.3. EMOTIONS ASSOCIATED WITH EACH OF THE MERIDIANS ARRANGED ALPHABETICALLY BY MERIDIAN

Source: the Professional Kinesiology Practitioner (PKP) training program, 1990

Bladder Meridian-yang WATER: Peace, Dread, Panic, Restlessness, Frustration, Inner direction, Impatience, Confidence, Courage

Central Meridian: Overwhelmed, Shy, Shame

Gall Bladder Meridian-yang WOOD: Love, Anger, Rage, Wrath, Self righteousness, Indignation, Forbearance, Assertive, Helpless, Passive, Humble, Proud, Choice

Governing Meridian: Embarrassment, Unsupported

Heart Meridian-yin FIRE: Forgiveness, Self-esteem, Self-worth, Insecure, Secure, Anger, Hate, Love

Kidney Meridian-yang WATER: Fear, Anxiety, Sexual (in)security, Creative (in)security, Cautious, Careless, Reckless, (In)decisive, (Un)loyal

Large Intestine Meridian-yang METAL: Guilt, Grief, Regret, Release, Self-worth, Enthusiasm, Depression, Letting go, Indifference (Un)merciful, Apathy

Liver Meridian-yin WOOD: Rage, Anger, Wrath, Distressed, Resentment, Self righteous indignation, Transformation, (Un)happiness, Content

Lung Meridian-yin METAL: Cheerful, Depressed, False pride, Haughty, Humility/Modesty, Scorn/Disdain, (In)tolerance, Prejudice, Contempt, Regret

Pericardium Meridian-yin (Circulation-Sex) FIRE: Calm, Hysteria, Relaxation, Stubbornness, Tranquility, Responsible, Jealousy, Remorse, Gloomy

Small Intestine Meridian-yang FIRE: Joy, Sorrow, Sadness, (Un)appreciated, Over excited, Internalization, Assimilation, Nourishing

Spleen Meridian-yin EARTH: Forgiveness, Rejected, Assurance, Faith in the future, Anxiety re the future, Confidence, Cynicism, Sympathy, Empathy, Envy

Stomach Meridian-yang EARTH: (Un)reliable, Critical, Contentment, Disappointment, Deprivation, Hunger/Nausea, Disgust, Doubt, Greed, Empty, Sympathy, Empathy, Bitter

Triple Warmer Meridian-yang (thyroid) FIRE: Despair, Elation, Despondent, Lightness, Heaviness, Loneliness, Humiliated, Hope(less), Serving, Balance

20.2.4. ABBREVIATION AND LOCATION DESCRIPTION OF STIMULATION POINTS ARRANGED ALPHABETICALLY BY MERIDIAN

(most are at the end points of the meridians. One of the nice things about this set of procedures is that, unlike acupuncture, you only need to be close to the points for the procedure to be effective)

Bladder Meridian-yang

eb = Eye Brow: where the eye brow meets the bridge of the nose

OR

lt-o = Little Toe Outside: in the corner where the toe nail meets the cuticle

Central Meridian

ll = Lower Lip Midline: under the lower lip on the midline

Gall Bladder Meridian-yang

e-oc = Eye Outside Corner: from the corner of your eye socket ½ inches toward your temple side

OR

4t-lts = Fourth Toe Little Toe Side: in the corner where the toe nail meets the cuticle

Governing Meridian

un = Under Nose: above the upper lip on the midline

Heart Meridian-yin

lf-i = Little Finger Inside: in the corner where the finger nail meets the cuticle

Kidney Meridian-yang

cb = Below Collar Bone: start from the bottom of the collar bone "V" and move (right and/or left) under your collar bone until you meet the first "dip." Moving your shoulders forward will bring out this spot since it feels like it's over a hinge (it's the collar bone - sternum connection)

OR

lt-i = Little Toe Inside: in the corner where the toe nail meets the cuticle

Large Intestine Meridian-yang

if = Index Finger Thumb Side: in the corner where the finger nail meets the cuticle

Liver Meridian-yin

ub = Under Breast under the nipple between ribs 6 and 7: below your nipple just above the bottom rib.

OR

bt-i = Big Toe Inside: in the corner where the toe nail meets the cuticle

Lung Meridian-yin

t = Thumb Outside: (away from index finger) in the corner where the finger nail meets the cuticle

Pericardium Meridian-yin (Circulation-Sex)

mf = Middle Finger Thumb Side: in the corner where the finger nail meets the cuticle

Small Intestine Meridian-yang

lf-o = Little Finger Out Side: in the corner where the finger nail meets the cuticle

Spleen Meridian-yin

ua = Under Arm: About one hand width or four inches below the arm pit under your arm
OR

bt-o = Big Toe Outside: in the corner where the toe nail meets the cuticle

Stomach Meridian-yang

be = Beneath Eye: on the small "notch" in the center of the lower bone of the eye socket
OR

2t-lts = Second Toe Little Toe Side: in the corner where the toe nail meets the cuticle

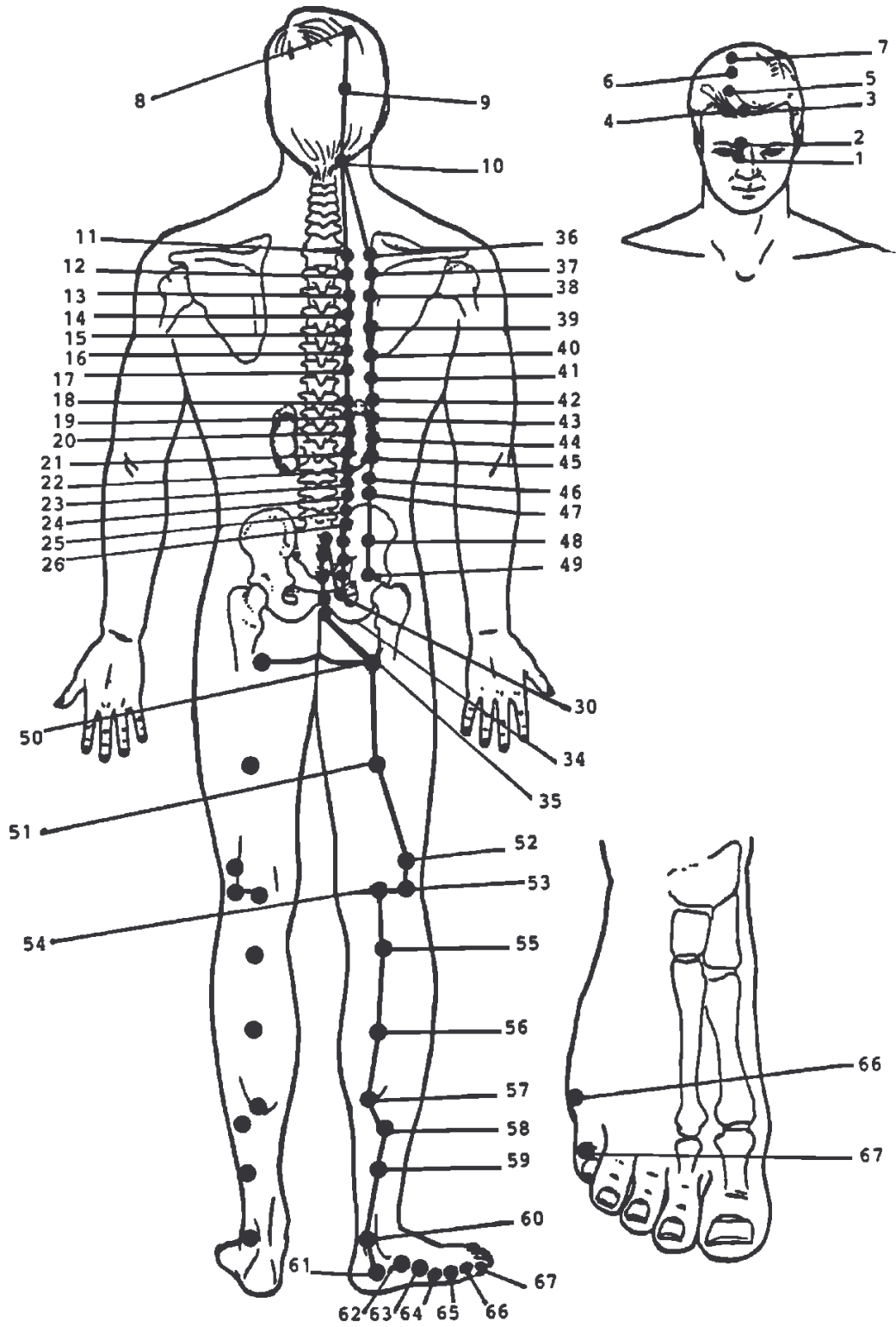
Triple Warmer Meridian-yang (thyroid)

rf = Ring Finger little finger side in the corner where the finger nail meets the cuticle
OR

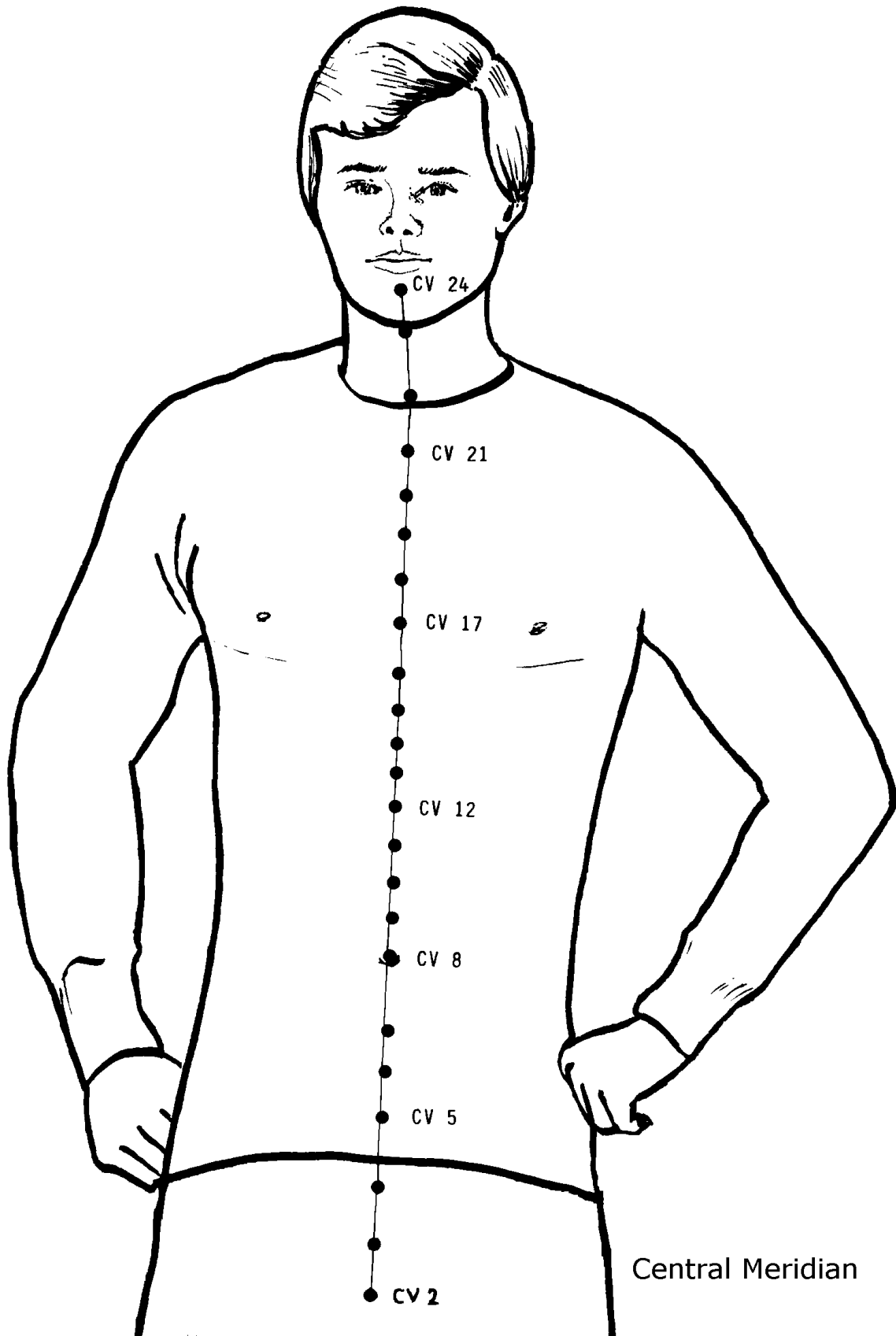
eb-out = Eye Brow Outside Edge: at the corner of your eye brow toward the temple side

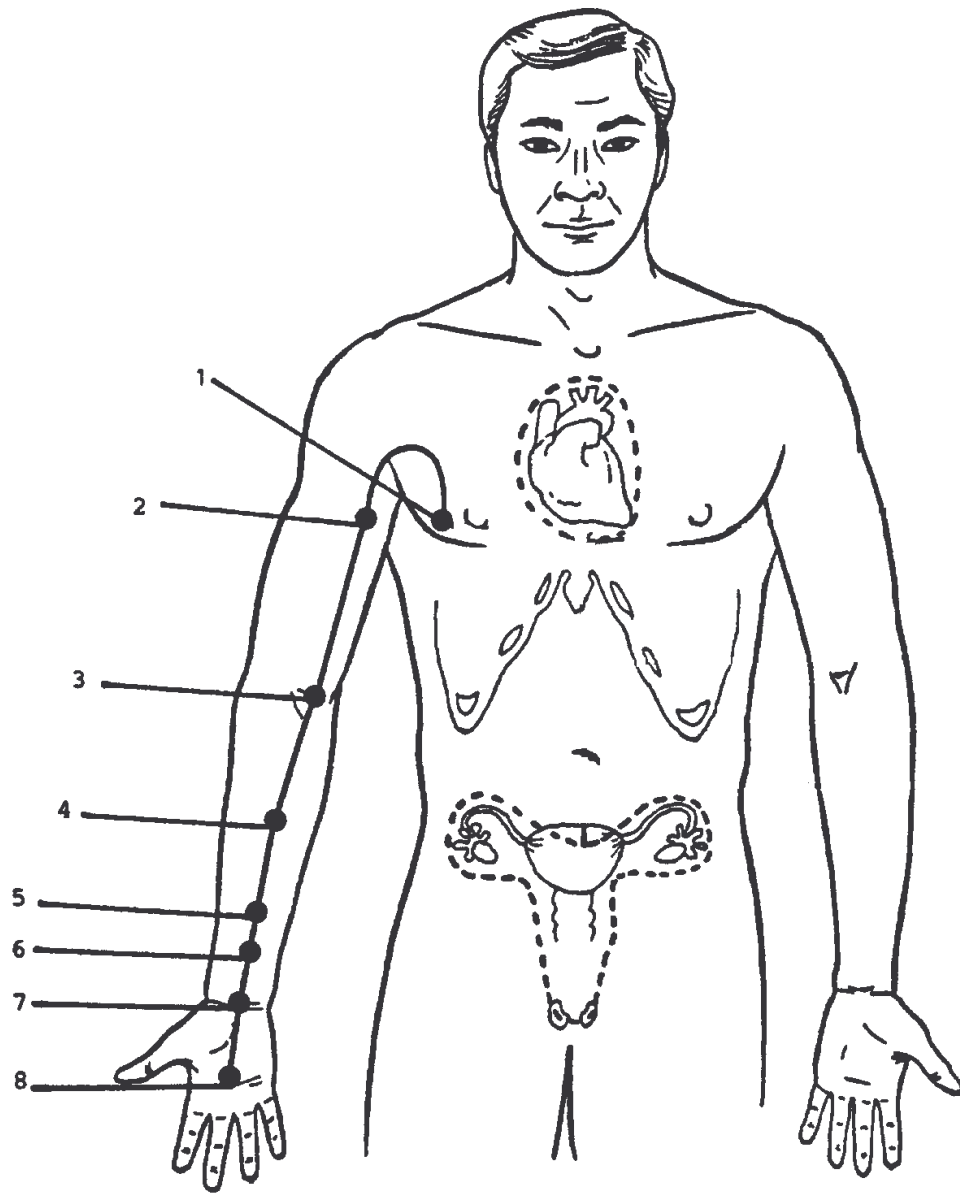
20.2.5. SIMPLIFIED DIAGRAMS OF THE MERIDIANS ARRANGED ALPHABETICALLY

The figures for the meridians are simplified from Levy, S.L and C. Lehr (1996, Your Body Can Talk: How to Use Simple Muscle Testing to Learn What Your Body Knows and Needs: The Art and Application of Clinical Kinesiology, Hohm Press) The original figures they used are by Dr. John Amaro, International Academy of Clinical Acupuncture, 1981. The Central and Governing meridians are from Biokinesiology Institute (1977/1984) Take Care of Yourselves Naturally.

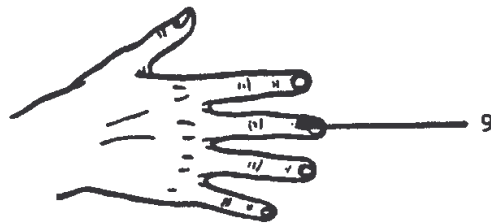


BLADDER MERIDIAN



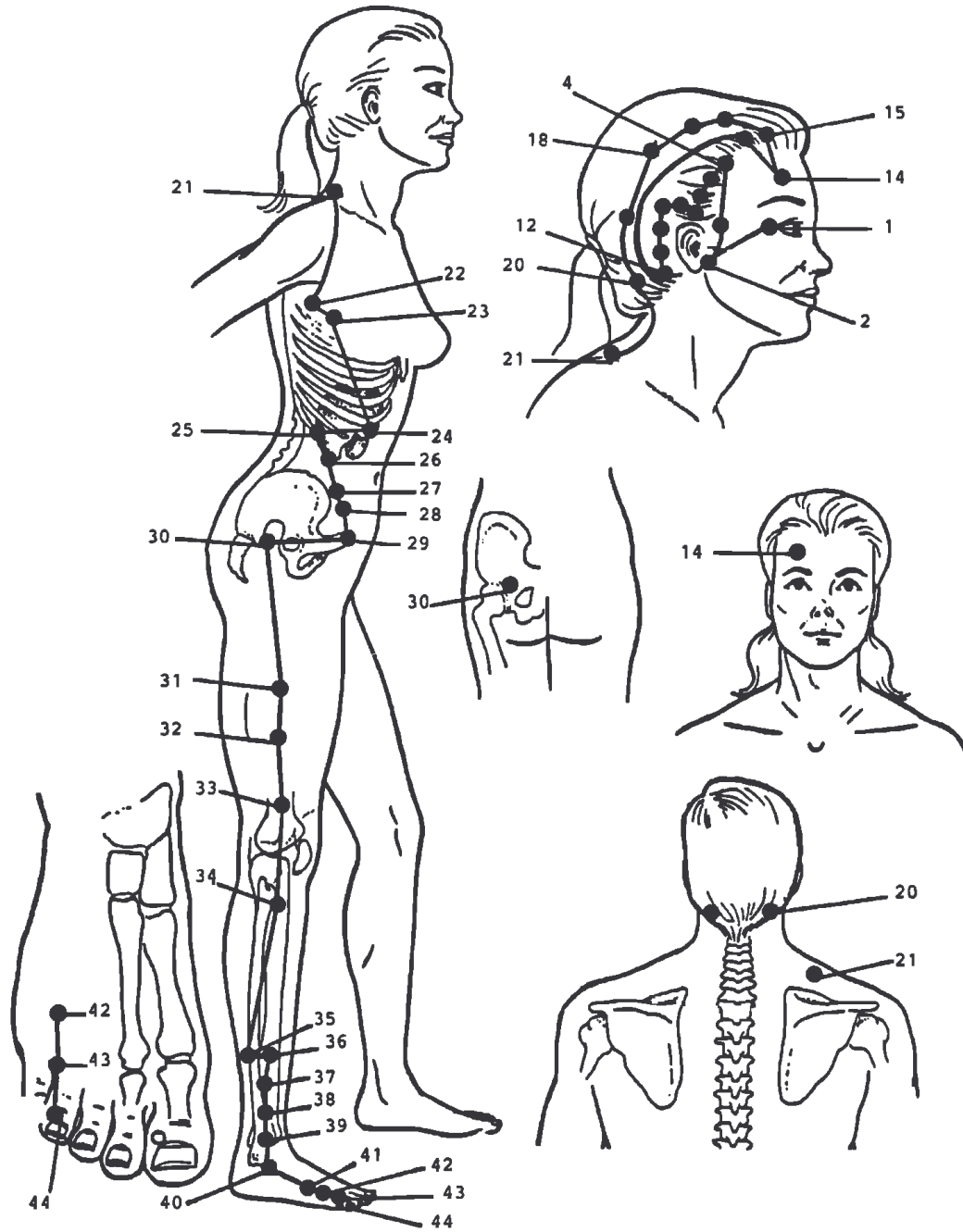


Plam

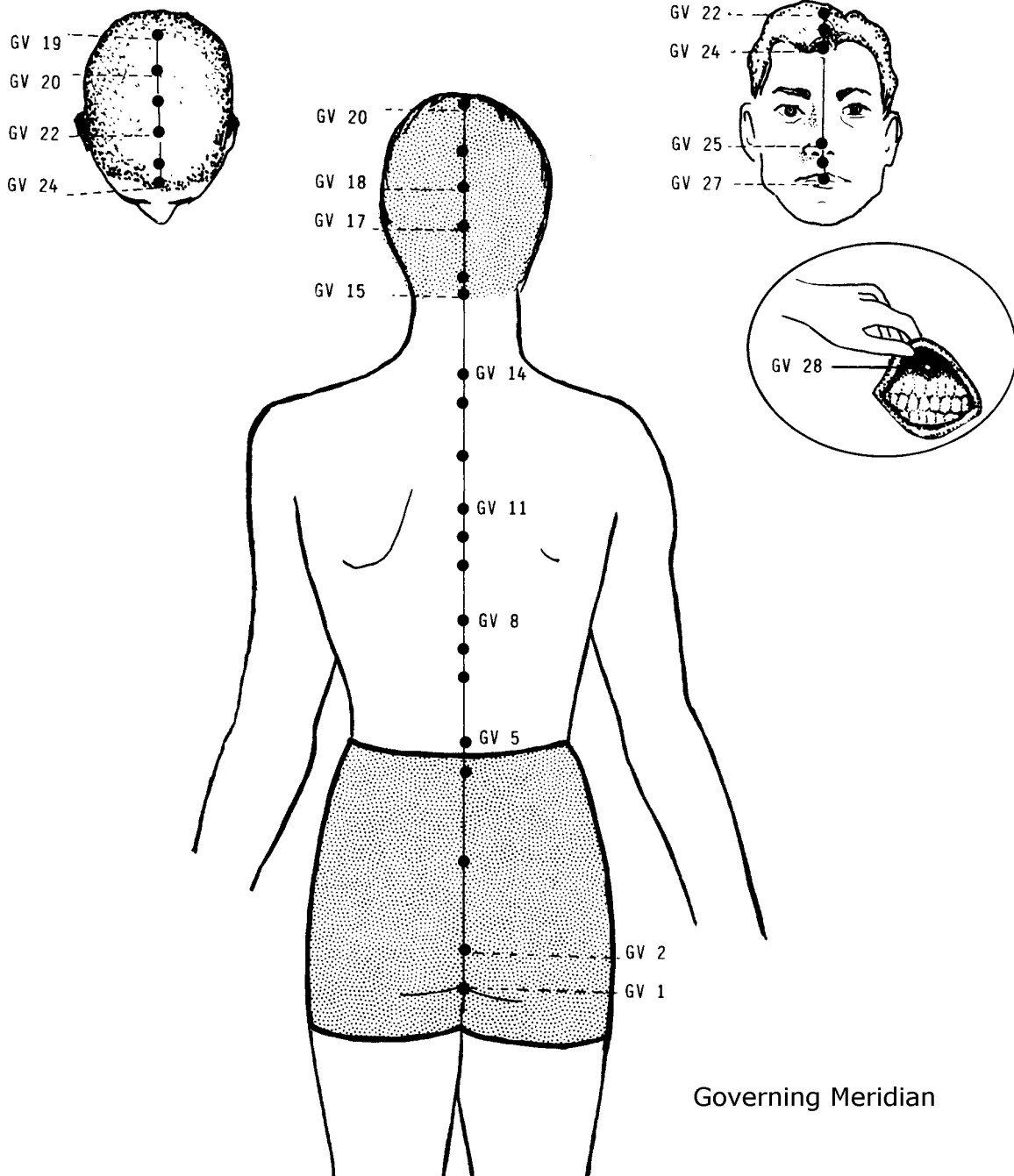


Back

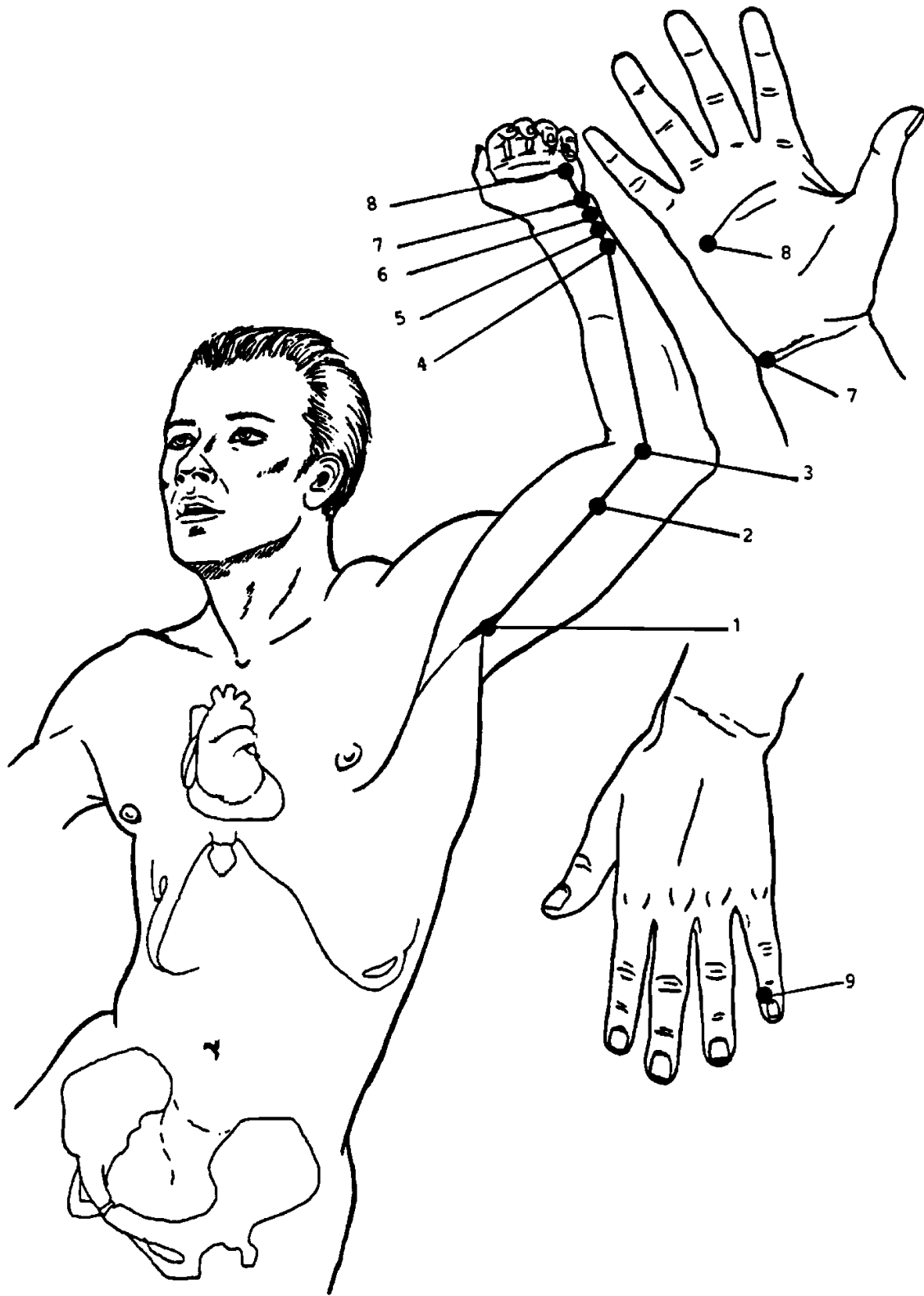
CIRCULATION/SEX-PERICARDIUM MERIDIAN



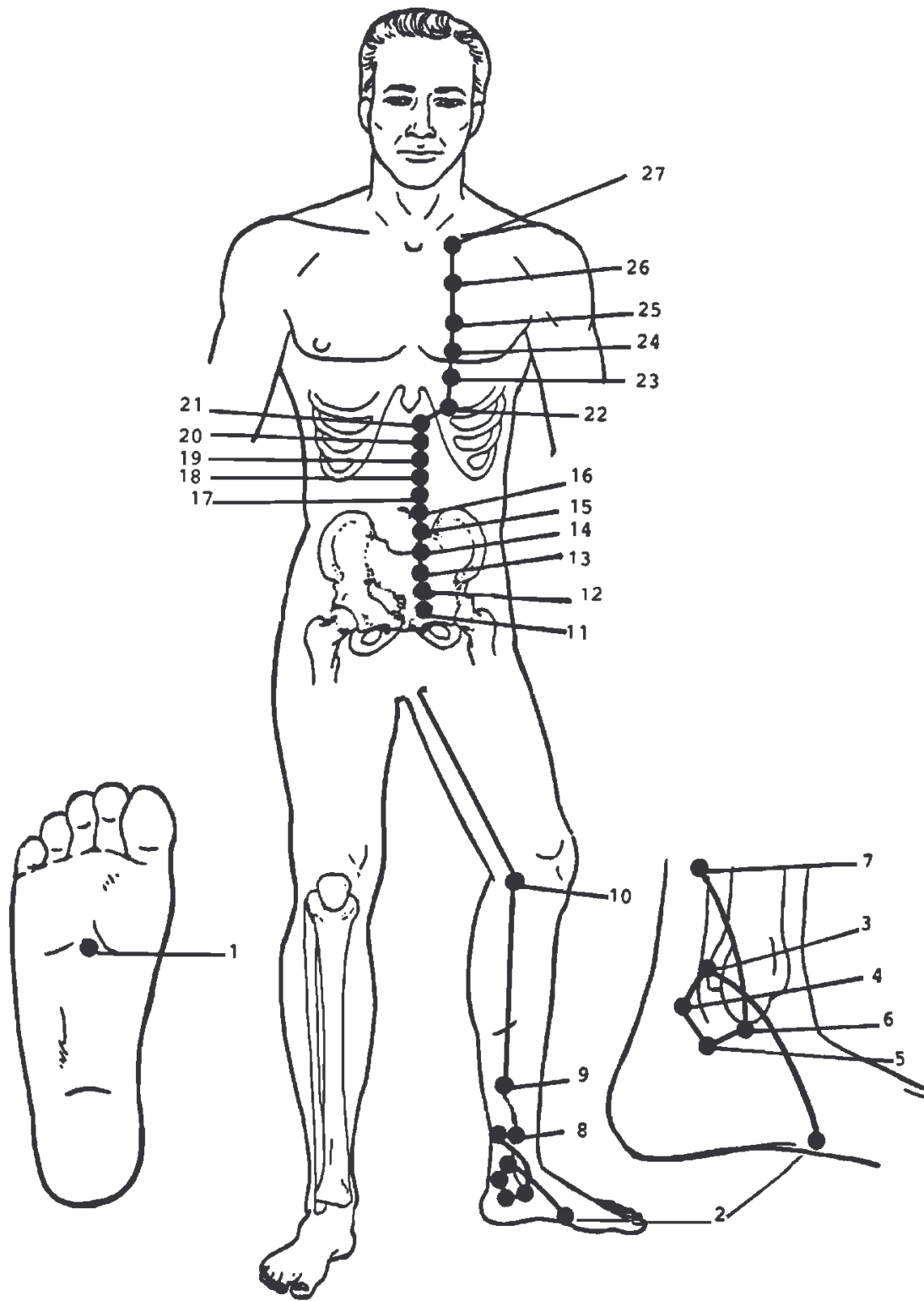
GALLBLADDER MERIDIAN



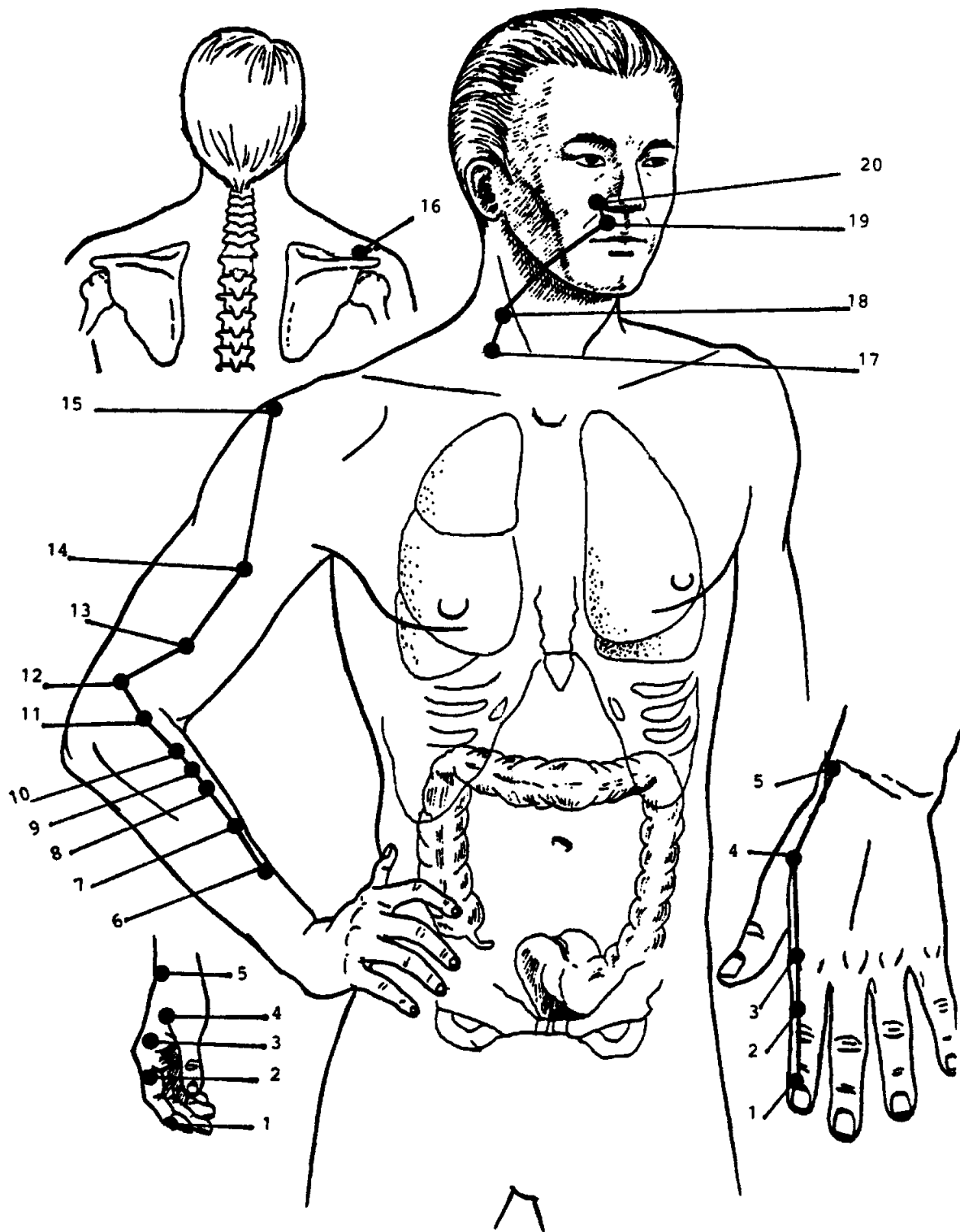
Governing Meridian



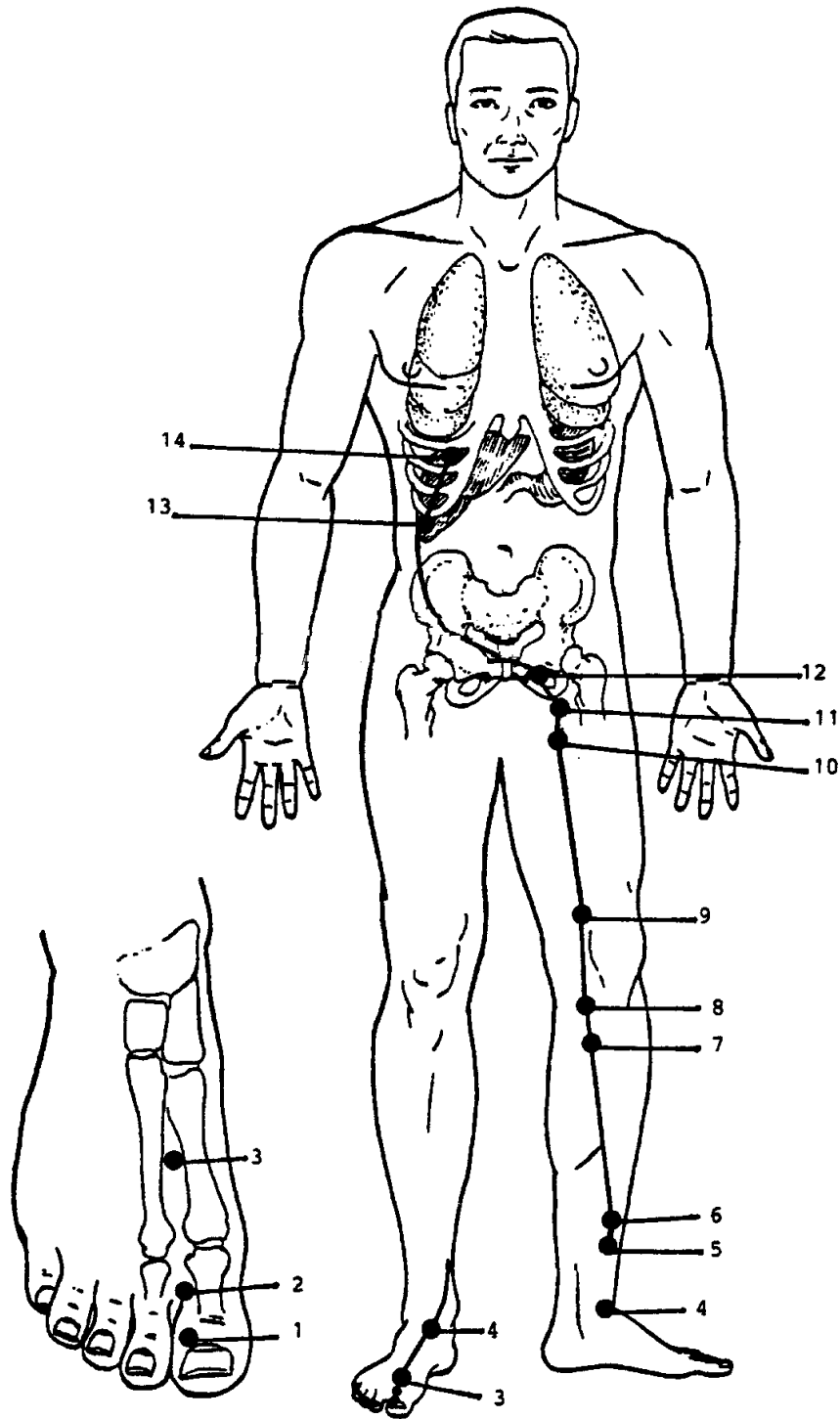
HEART MERIDIAN



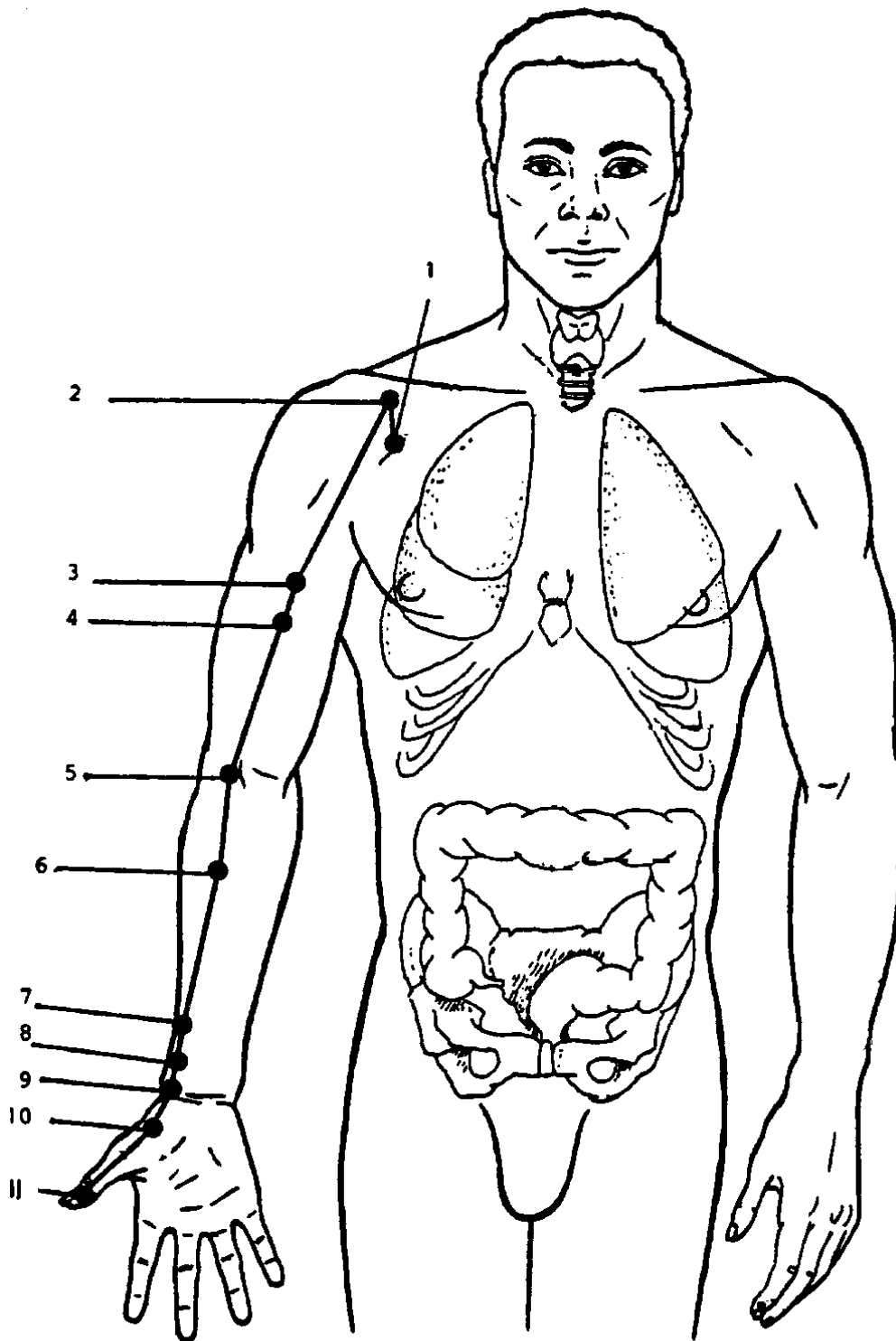
KIDNEY MERIDIAN



LARGE INTESTINE MERIDIAN

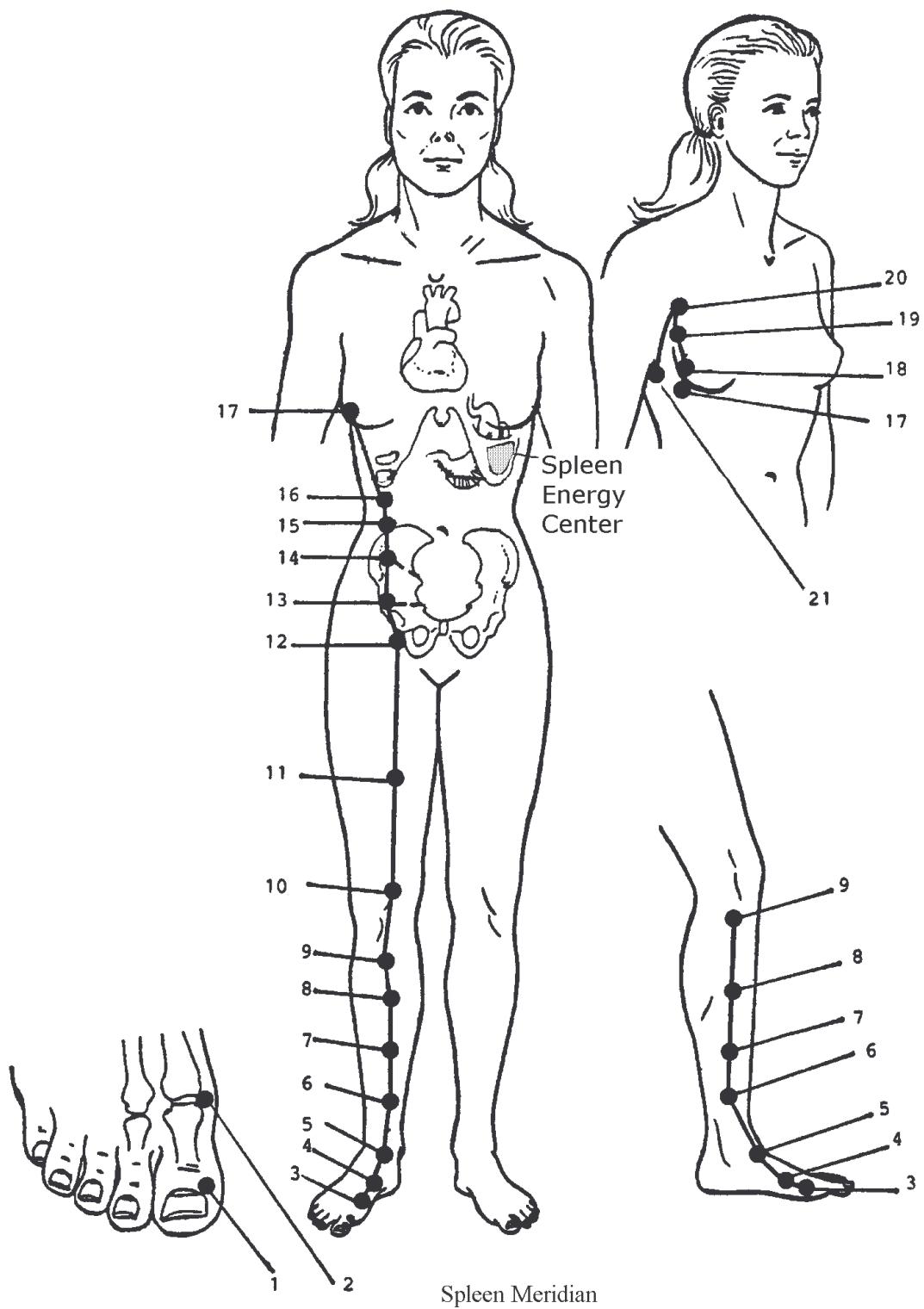


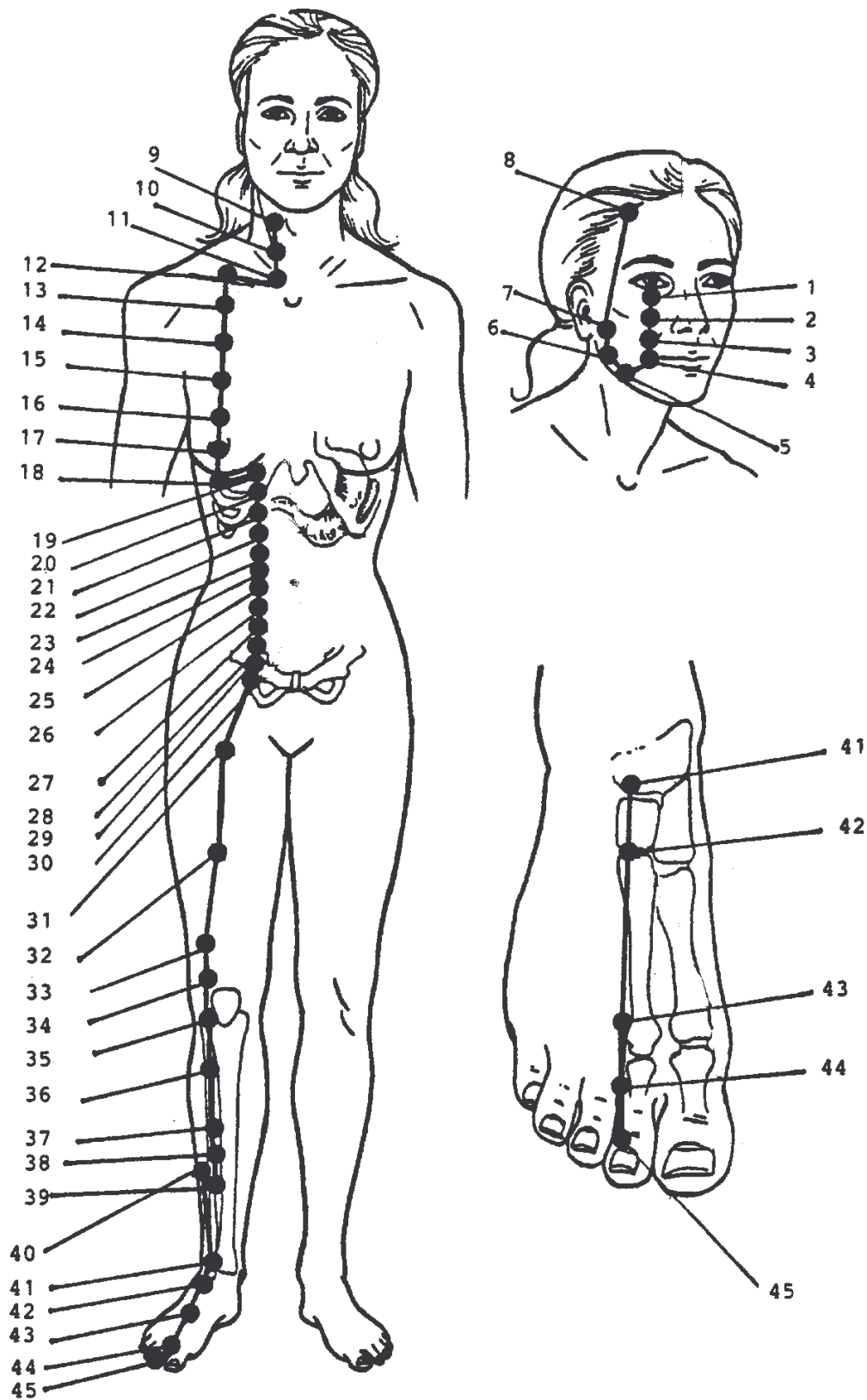
LIVER MERIDIAN



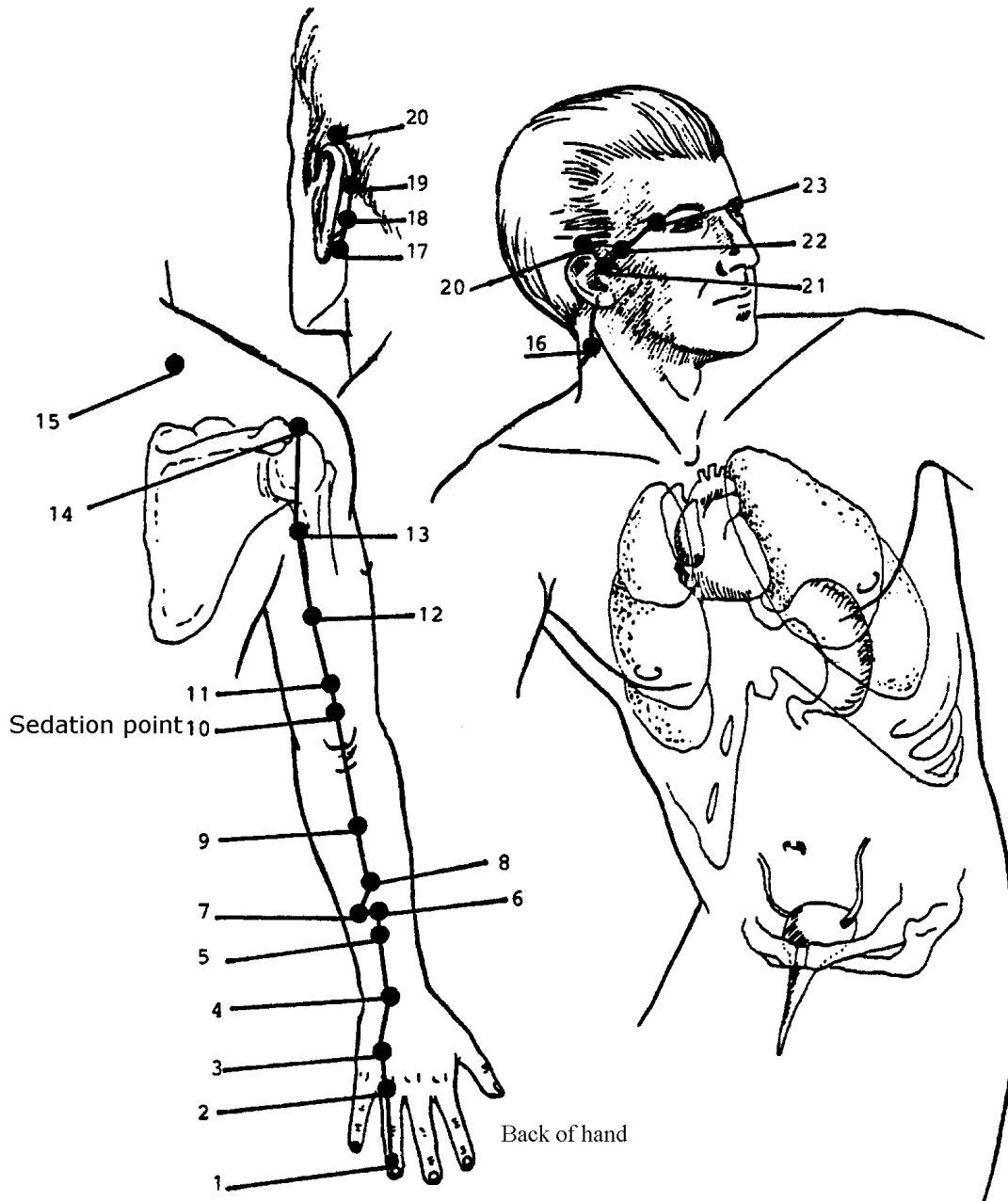
Palm

LUNG MERIDIAN





STOMACH MERIDIAN



TRIPLE WARMER MERIDIAN [Thyroid]

20.3. DONNA EDEN'S DESCRIPTION OF THE MERIDIAN EMOTIONS [see note 1] AND AFFIRMATIONS [see note 2]...ARRANGED ALPHABETICALLY BY MERIDIAN

Available on the Energy Psychology Interactive CD ROM Available at: www.innersource.net

20.3.1. BLADDER MERIDIAN

"Reactive Emotions/Themes: Fear, Anxiety, Futility

Balancing Emotion/Theme: Hope

Sample Affirmations: *I am hopeful. I am hopeful about [solving this problem].*

Why: Bladder meridian governs the nervous system. The nervous system and the bladder meridian begin at the same spot, the third eye. The nervous system transports millions of pieces of information every second. When the energies that support it are in their flow, the capacity to fulfill every potential is activated, the future is bright, hope abounds. When its energies are disturbed, problems cannot be solved, the world becomes fearful, aspirations futile."

20.3.2. CENTRAL MERIDIAN

"Reactive Emotion/Theme: Feeling Vulnerable

Balancing Emotion/Theme: Feeling Centered and Secure

Sample Affirmations: *I am clear, centered, and secure. I am confident about how I will [meet this challenge].*

Why: Central meridian runs up through all the chakras, the body's energy centers. When central is in its flow, the major energy bases are nourished and the sense of being 'centered and secure' is prominent. When central is disturbed, you cannot access the strength that comes from your major energy centers, leaving you feeling vulnerable and actually being vulnerable."

20.3.3. GALL BLADDER MERIDIAN

"Reactive Emotions/Themes: Rage, Judgmentalness

Balancing Emotions/Themes: Tolerance, Kindness

Sample Affirmations: I reach out with kindness and forgiveness.

Why: The bile produced by the liver to break down fats, toxins, and stomach acid is stored in the gall bladder, ready at a moment's notice to do its nasty work on complex foods. The gall bladder meridian goes through the gall bladder, surfaces at the outer eye, and is associated with looking outward. The combination of this surveillance and propensity to rip things apart, when the gall bladder's energies are disturbed, can escalate from a tendency to pass judgment to a monolithic rage toward whoever or whatever crosses its path. When gall bladder meridian is in its flow and its power to destroy toxins secure, it can look toward the world with kindness and mercy."

20.3.4. GOVERNING MERIDIAN

"Reactive Emotion/Theme: Lacking Courage to Move Forward, 'No Backbone'

Balancing Emotion/Theme: Sense of Strength, 'Standing Tall'

Sample Affirmations: *YES, I can. YES, I can [overcome this problem].*

Why: Governing meridian runs up the spine. It is the energy BEHIND you. When this energy is in its flow, it makes your posture straight. You stand tall. You have power. When it is disturbed, what appears as a lack of courage is actually a lack of access to the energy that would give you reason to be brave."

20.3.5. HEART MERIDIAN

"Reactive Emotion/Theme: Heartache or Heartbreak

Balancing Emotion/Theme: Love for Self or Others

Sample Affirmations: I breathe love into myself. I can [do what is required] with love.

Why: Intense feelings go straight to the heart. It sets the mood for all the organs. When the heart's energies are in their flow, love and joy flourish. When overwhelmed with pain or grief, the heart aches and can literally break."

20.3.6. KIDNEY MERIDIAN

"Reactive Emotions/Themes: Fearful Isolation, Shame

Balancing Emotions/Theme: Gentleness with Self

Sample Affirmations: *I am gentle with myself. I step out gently.*

Why: The kidneys are a phenomenal disposal system, filtering toxins from the blood and ridding them from the body. If the energies of kidney meridian are disturbed, this critical, life-sustaining task is disrupted. No other organ can accomplish what needs to be done, and a disturbed kidney meridian labors in fearful isolation. The shame of failing to keep you alive hangs in the outcome. When kidney meridian is in its flow, this isolation and shame, looming as potentials, are countered by gentleness and understanding, as if speaking to a frightened child."

20.3.7. LARGE INTESTINE MERIDIAN

"Reactive Emotions/Themes: Controlling, Holding on

Balancing Emotion/Theme: Releasing,

Sample Affirmations: *I surrender (or let go). I let go of the hooks keeping me attached to [this problem].*

Why: Some of what was taken in for the purposes of nutrition cannot be used and must be expelled. After the body's multi-system process of sorting through what to keep, the critical job of the large intestine is to make a final determination about what is not needed and to let it go. When the energies of the large intestine meridian are in their flow, the waste is easily and naturally sorted from what needs to be reabsorbed. It is released back into the world. When the energies are disturbed, waste and sustenance are not clearly distinguished and the urge is to hold on, to retain what is toxic because it has not been differentiated from what is needed."

20.3.8. LIVER MERIDIAN

"Reactive Emotions/Themes: Rage Against Self, Guilt

Balancing Emotion/Theme: Kindness Toward Self

Sample Affirmations: *I like myself. I am no longer angry at myself.*

Why: Liver is the largest organ in the body, with hundreds of functions. Removing toxins is among the most important. Liver meridian also governs the eyes and is associated with an inner seeing, as if the eyes are turning back to look at oneself. When the propensity to break down poisons combines with sight turning inward, rage directed toward the self is the disease of a disturbed liver meridian. When liver meridian is in its flow, poisons of body and mind are comfortably removed and a kind eye turns within."

20.3.9. LUNG MERIDIAN

"Reactive Emotions/Themes: Grief, Detachment

Balancing Emotions/Themes: Inspiration (in-breath), Letting Go (out-breath), Faith

Sample Affirmations: *I have faith [this problem will be resolved]. I am letting go of [this problem].*

Why: Lung meridian breathes in the energy of life, bathes every cell in that energy, and releases the residue back to the world. Each out breath is based on faith that an in-breath will follow. When lung meridian is in its flow, faith is easy as each release is followed by new inspiration. When this energy is disturbed, the release seems a threat, the desire is to hold on, letting go means loss, grief follows, detachment is the reflexive defense."

20.3.10. PERICARDIUM MERIDIAN (Circulation-Sex)

"Reactive Emotions/Themes: Bewildered by Choices and Demands, Neglecting Heart's Needs

Balancing Emotion/Theme: Discernment, Prioritizing Heart's Needs

Sample Affirmations: *I am discerning. I support my heart's needs.*

Why: The pericardium is the buffer between the beating heart and the other organs. Like a good secretary, it must make clear choices about how the boss' energy and resources are managed. When the pericardium meridian is in its flow, discernment thrives and decisions support the heart's needs, which reflect the soul's longing. When the pericardium meridian is disturbed, the demands from without and within become overwhelming, and the heart and soul's needs become lost in the confusion."

20.3.11. SMALL INTESTINE MERIDIAN

"Reactive Emotion/Theme: Feeling divided, pulled in more than one direction

Balancing Emotion/Theme: Decisiveness

Sample Affirmations: *I know what I want (or will do). I feel decisive about [overcoming this problem].*

Why: The job of the small intestine is to decide what to do with the food. Sorting through a chemical complexity that is sobering to imagine, the small intestine must make instant decisions

about what will become you and what will be eliminated. When the energy of small intestine meridian is in its flow, decisiveness prevails, choices are easy. When this energy is disturbed, even the simplest decision will divide you."

20.3.12. SPLEEN-PANCREAS MERIDIAN

"Reactive Emotions/Themes: Over-Compassionate, Inability to Assimilate Input

Balancing Emotions/Themes: Fairness Toward Self, Metabolizes Input into Self

Sample Affirmations: *I feel compassion for myself.*

Why: The spleen and the pancreas are the body's great metabolizers. The useful life of a red blood cell is but a month, and the spleen (along with the liver) is involved in the breakdown of 10 million worn-out blood cells a second so their materials can be used in the creation of 10 million new blood cells the next second. The pancreas secretes insulin that converts sugar to energy, and it secretes other hormones and enzymes that metabolize other foods, converting it from what was outside of you into what is you. The spleen-pancreas meridian is involved in metabolism of all forms, from food to emotions to experience. It is oriented to recognizing possibility in the other, the other's value (whether a sugar molecule or a rival colleague) as a potential resource toward the greater good. When this meridian is disturbed, it works even harder to find what is right in the other, compassionate perception overwhelming even its own needs and interests. Fairness toward self as well as to others is the mark of a spleen-pancreas meridian in a balanced flow."

20.3.13. STOMACH MERIDIAN

"Reactive Emotions/Themes: Obsessive worry

Balancing Emotion/Theme: Trust in the larger picture.

Sample Affirmations: *I let go of worry. I trust the process (or the Universe).*

Why: The stomach stores the source of the body's energies. When all is well and its energies are in their flow, there is trust that the next meal will come. When stomach meridian is disturbed, the body's source of energy is threatened, and the worry, gloom, and fear may become obsessive."

20.3.14. TRIPLE WARMER MERIDIAN

"Reactive Emotions/Themes: Fight or Flight

Balancing Emotion/Theme: Feeling Safe

Sample Affirmations: *I am safe. I am [we are both] safe as I [overcome this problem].*

Why: Triple warmer governs the fight or flight response out in the world, the immune response to internal invaders, and the survival habits that are induced by threat. When this meridian is in its flow, we are cradled in a sense of safety within its protective hands. When it is disturbed, all systems go on alert and defense is elevated above any other purpose."

"Note 1: Because emotions are determined by many factors, and because each person is psychologically and energetically unique, the meridians and corresponding emotions, as listed, must

be understood as generalizations rather than unvarying cause-effect relationships. However, you may be surprised by how well these generalizations hold in your clinical practice. While earlier formulations have been used within energy psychology, this list represents a conciliation of previous lists, 'five element theory' from Chinese medicine (a penetrating 5,000-year-old system for understanding human energies and emotions), and consultations with Donna Eden about how she clairvoyantly 'sees' the body's energies, and the accuracy of her sight has repeatedly been verified in clinical settings."

"Note 2: The affirmations must also be understood as generalizations, starting points in crafting a statement that is attuned to the presenting problem and the energies and emotions that underlie it."

20.4 INTRODUCTION TO RADIANT CIRCUITS (strange flows, extraordinary vessels, curious meridians)

Wisneski (2000/2002) writes "There is a type of chi called *yuan chi* which represents the energy we brought onto the planet. That is, it represents ancestral energy or the very energy of the soul. Yuan chi is the energy of the soul circulating in the curious meridians. This energy is housed in the extraordinary, or 'curious' meridians. The chi in the principle (more superficial) meridians contains chi from the food we eat and the air we breathe, *i.e.*, from our environmental surroundings. The yuan chi is the soul energy. This energy comes in and develops an energetic three trunk (the curious meridian, chong mo-[governing]), this beautiful tree trunk conducts energy through your spinal canal and the branches or the tree form the principle [ordinary] meridians...This is dealing in sacred territory and one needs to have great reverence when locating points on curious meridians... As one starts clearing the blockages and repressed traumas surface and dissipate, one can imagine the curious meridians infusing and releasing its sacred (soul) energy into the corresponding principle [or ordinary] meridians, as the soul energy reservoir... It is my (Warren) contention that progressively higher states of awareness represent the stages of infusion of this sacred energy into the principle [ordinary] meridians. This corresponds to increasingly higher states of awareness and increasing levels of health and vitality. That reservoir becomes more and more filled as one allows more of the sacred energies into the body. Eventually when yuan chi exceeds planetary chi the state of samadhi or enlightenment is at hand." Wisneski (2000/2002, pp. 33-34) (underlining added)

This serves as the basis for the claim that thesm (which uses four curious meridian/radiant circuits) is potentially transformational as well as therapeutic.

20.5. DONNA EDEN'S DISCUSSION OF TRIPLE WARMER and the STRANGE FLOWS {RADIANT CIRCUITS} [1998, 2002a and 2002b]

Sources: Donna Eden discusses and describes in chapter 8 of her book Energy Medicine (1998) the "Triple Warmer and the Strange Flows: The Energetic Arms of Your Immune System," in the 2002a article "Triple Warmer: It's Hotter Than You Think," and in the 2002b article "Radiant Circuits: The Energies of Joy."

VHS tapes available: An Introduction to Energy Healing 1hr51mins. Energy Healing: three tapes: 2hr7min, 2hr1min, 1hr50min Available @ Innersource, POB 213, Ashland, OR, 97520, 1-800-835-8332. Website: www.innersource.net

Note: In Donna Eden's recent approach (2002b) to this field, Eden has called the Triple Warmer the "Triple Stimulator" since it stimulates the body's immune and protection systems. She has dropped this re-labeling but I feel it captures an important property. I will use the traditional "warmer" but keep in mind the "stimulator" function. She also refers to the "Strange Flows" by "Radiant Circuits." Thus, I plan to follow suite. I indicate the changed use of the new terms by enclosing them in {...}

My comments are contained in [...].

20.5.1. 2002a VERSION [my inserts]

"The energy system described by the term 'triple warmer' is among evolution's great success stories. Triple warmer functions as a meridian, but it is more than a meridian. It shares properties with the energy system the Chinese physicians called the 'strange flows' or 'extraordinary vessels,' {radiant circuits} but it is also more than a {radiant circuit}. Triple warmer, in fact, governs three of the body's most extraordinary mechanisms:"

"1. The immune system

2. The emergency response to threat ('fight or flight') [the freeze reaction is due to the over reaction of the primitive dorsal vagal complex of the parasympathetic system]

3. The ability to form habitual behavioral patterns for managing stress or threat." [used in the "temporal tap" technique]

"With these strategies, triple warmer (which we also call 'triple stimulator' since it stimulates these three mechanisms) has helped millions of species survive over millions of years. But it evolved for a world that no longer exists. Triple warmer's essential task is to identify threat and to protect you, both internally (immune response) and externally (fight or flight). As civilization, and technology in particular, have advanced, the ability of triple warmer to sort out what is friend and what is foe, has been overwhelmed, so that for many people, triple warmer is on continual alert..."

"Triple warmer takes charge of the meridian system and organizes its energies for this response. The entire emergency reaction may be triggered not only by actual threat, but it may be set off by any unrecognized stimulus, and it may become conditioned to a host of 'false alarms.'..."

"When understood at the level of the body's energy systems, the fight or flight response is a far more intricate and pervasive mechanism than when understood only in terms of its biochemistry. *It is, in fact, the underlying mechanism involved in many psychological problems:* Whenever psychological stress or perceived threat exceeds a critical threshold, an analog of the fight or flight response occurs within the energy system (*this actually precedes and regulates the biochemical reaction*)...[italics added]"

"Triple warmer is continually scanning for danger. When it identifies a threat or potential threat, it *mobilizes the energies governed by specific meridians to respond to that threat*...[italics added]"

"The principle of deep-seated survival patterns is rooted in the economy in habit. A survival strategy can be implemented for a new threat more efficiently if it is patterned after strategies that have worked in the past. This economy, however, carries two risks: 1) the survival strategy may not be sufficiently attuned to the immediate danger, and 2) the survival strategy may become deeply

embedded and evoked in circumstances where it is not needed, the 'false alarm' factor *which is at the root of many psychological problems.[italics added]*..."

"[B]ecause the threat response overpowers reason, the resulting perceptions, thoughts, and actions are often self-destructive.[italics added]..."

"The mechanism that maintains deep-seated survival habits within the body's energies is the conditioning of a disturbed response in one or more of the meridians to stimulus, such as an internal image or external situation. Working with acupoints *that bring balance back to that meridian in the presence of the provoking stimulus reconditions this habitual pattern.[italics added]*..."

"Because triple warmer operates in part according to the principle of deep-seated survival patterns, the meridian response may be intransigent or tied into a more complex survival strategy. Changing this habit may require repeated treatments to shift the well-established energy pathways or treatments that address other aspects of the survival strategy." [In the REBSM protocol, this is the purpose behind finding hidden aspects via eye/head work, using the choices wording for affirmations and goals, and installing positive emotions to replace the negative.]

20.5.2. 2002b VERSION

(taken from an internet source, one version is published in Gallo, 2002, chap 21)

"In [chapter 21], '**Radiant Circuits: The Energies of Joy,**' **Donna Eden and David Feinstein** focuses on an energy system associated with feelings of joy, the awakening of psychic abilities, and the channeling of healing energy. Distinct from meridians, chakras, or biofields, their appearance is described by people who see energy as having a radiant quality. And they, in fact, bring a radiant, joyful, uplifting vibration to all they touch. The radiant energies are a limited, precious resource, and it is the body's design that, like hyperlinks, they jump to wherever they are most needed. Recognizing their unusual characteristics, the ancient Chinese physicians called them the 'strange flows' or 'extraordinary vessels.' They are significant for working with psychological issues because a person cannot feel joy if the radiant energies are not flowing and cannot move through life in an integrated manner if the radiant energies are not connecting and harmonizing the other energy systems. This chapter includes a wide array of precisely described exercises designed to develop one's radiant energy system and thus greater intuition, inner joy, and psychic ability." (Gallo, 2002, Preface, taken from Gallo's website)

"Wherever *the radiant energies* move, they bring strength and resilience, joy and vitality. These energies are a precious resource, and it is the body's design that they *jump to wherever they are most needed*. Beyond doing repair work, these are also primary energies in exhilaration, falling in love, orgasm, hope, gratitude, rapture, and spiritual ecstasy...Through them, *all of the body 's energy systems are linked and energetic deficiencies and excesses regulated*...The radiant energies were first described in ancient Chinese texts dating back some 4500 years...and their use continues to be reported within the clinical literatures of acupuncture..., acupressure..., Jin Shin Do..., Qigong..., and shiatsu... A study reportedly conducted in China and subsequently suppressed found that *treatments which focused on the radiant energies were 'far more effective than those of the traditional Chinese protocols'*...The radiant circuits appear to predate the meridians, and they are the first energy circuit to appear in the developing fetus...We believe, in fact, that a meridian is a pathway that was once, in the course of evolution, a radiant circuit...As creatures became more

complex, radiant energies that moved along the same lines day after day, generation after generation,...formed the meridians. Meridians are the energy equivalent of riverbeds, habits of energy movement that have become entrenched in the body's energy system. A meridian is highly efficient for specific, repetitive tasks. *Radiant energy*, on the other hand, *spontaneously jumps to wherever it is needed* [like a hyper link on the net]. It appears capable of intelligent choice. *Meridians accomplish more narrowly defined tasks*. They appear capable of doing these tasks with intelligence and efficiency, but *their creative problem-solving abilities are limited to their own pathways...The radiant circuits*, serving as 'inner wells of joy,' *support a vibrancy and a harmony throughout the entire body-energy system. Working with the radiant circuits can change a person's future*, orienting the psyche toward ecstasy rather than despair. They can be *marshaled for overcoming self-sabotage and negative thinking*. They *bring us in contact with our core self*, showing us how healthy functioning felt before life's inevitable woundings... By countering the Triple Warmer system's lock on habitual thought and behavioral patterns, they can *help people trapped in dysfunctional habits to change them*. And to the degree we can cause our radiant energies to be activated more consistently, the greater our inner peace and enjoyment of life." (italics added)

"The dance between the radiant circuits and dysfunctional patterns of belief and behavior is worth understanding. *The radiant energies are the most direct influence for balancing the excesses of Triple Warmer, which is the keeper of energetic habits and holds the authority of a commander-in-chief during wartime* [the inner defender or warrior role]..."(italics added)

"Triple warmer is concerned with your survival, not your evolution or happiness, and it regards your core beliefs as assets that have helped you survive. True or false, functional or destructive, it will fiercely protect your deepest myths. Fight-or-flight trumps constructive change. *Triple warmer carries a pervasive, insistent energy that leaves people trapped in their negative patterns*. Activating the radiant energies, particularly in times of stress, relaxes triple warmer, radiating a sense of safety and facilitating an opening for new guiding myths and coping strategies." (italics added)

"[O]ur emotions, thoughts, and beliefs are not just ethereal events; they *exist in your energy system and they permeate your cells...* Some become so deeply embedded that they seem to carry the weight and structure of absolute truth, settling into your deepest perspectives about life. Initiating shifts in these *deep habits and states of mind*, even if they are clearly dysfunctional, can be deceptively difficult. *The radiant energies can be directed to impact them perhaps more profoundly than any of the other energy systems.* (italics added) Consider activating the radiant energies:"

"If Negativity is a Persistent Theme in a Person 's Life. Because the radiant circuits are a distinctly 'positive' energy, they erode negativity and leave a positive, optimistic, hopeful psychological imprint."

"To Overcome Resistant Habits. Energy habits are part of the body's survival strategy, a primal value system that operates far beneath the conscious mind. Radiant circuits have better access for causing shifts in this value scheme than any of the other energy systems. They are also able to permeate the cells and thus spread new information as cells replicate."

"When Caught in the Past. Even if a person's energy system is holding onto a habit, a belief, or a dream that is no longer viable, *hooking up the radiant circuits as the person thinks about the issues forges a fresh pathway that allows a new truth to become embedded.*" (italics added)

"When Other Corrections Won't Hold. When energy treatments result in improvements, but the improvements are short-lived, older energy habits ...may be winning the battle. Activating the radiant circuits can weave the corrections into the larger energy system."

"When Stress Cancels Improvements. If an energy correction holds, or if self defeating patterns have been overcome, but these improvements do not have much resilience when stressful situations are encountered, the radiant energies can be a powerful ally. If you can make them a more pervasive force in an ongoing and consistent manner, you will be less vulnerable to the way that stress tends to engage old habits or activate past fears and trauma."

When Energies Won't Stay in Balance. Top-bottom, left-right, and front-back splits in people's energies (all the meridians or chakras above the waist are strong and below the waist are weak, etc.) are common, costly, and the radiant circuits are the great balancers within the body's energy system."

20.5.3. 1998 VERSION (with {new terms} substituted)

According to Eden "No energy pattern can yank a person around as much as a *triple warmer-spleen imbalance*. [If the triple warmer is too activated, the spleen has] no energy to do its job. This throws off the balance in every system of your body. It *ensures metabolic, chemical, and hormonal disarray*. It *particularly affects the nervous and immune systems*...Spleen and pancreas, the major organs on the spleen meridian, begin the metabolizing process for the whole body. When they are perpetually being robbed of their energy [by an over active triple warmer], all the metabolic processes are disrupted...**Triple warmer-spleen imbalances are...responsible for food cravings, the weight yo-yo, obsessive eating, anxiety, foggy thinking, mood swings, premenstrual syndrome, allergies, most auto immune diseases, chemical sensitivities, and recurrent infections.**" (p. 253, italics and bold added)

"Triple warmer is the meridian that networks the energies of the immune system to counter an invader, but it functions in ways that are beyond the range of any single meridian. It also operates as a {radiant circuit}. {Radiant Circuits} do not follow specific pathways. They are more diffuse and they intersect all of the meridians. Rather than staying on its own meridian line, triple warmer energy jumps its course and, like a {radiant circuit}, hooks up with the other meridians and organs. *The triple warmer meridian networks information to all the meridians and organs they serve. It is governed by the hypothalamus gland, the body's thermostat and the instigator of the fight-or-flight response*...Triple warmer prepares the body for war!" by mobilizing your inner militia (p. 226, italics added) This is basically a description of the function of the sympathetic branch of the autonomic nervous system: preparation for stress and speed, fight, flight [the freeze reaction is due to the over reaction of the primitive dorsal vagal complex of the parasympathetic system].

"If triple warmer mobilizes your 'inner militia,' the {radiant circuits} [especially the spleen meridian] mobilize your 'inner [peace keepers].' They support, inspire, strengthen, and cajole all your organs and energy systems to function as a tightly knit [unit]. Whereas triple warmer protects

you using the principle of conflict, the {radiant circuits} protect you using the principle of harmony...[the {Radiant circuits} function by] insuring that all systems will work for the common good, redistributing energies to where they are most needed..."(p. 243) Thus, they function as the parasympathetic nervous system which peacefully preserves and protects (the smart vagus).

"...{Radiant circuits} respond to your thoughts instantly and scrupulously. They are more affected by your ideas, images, and beliefs than any other energy system." (p. 247) "*{Radiant circuits} are the energetic bridge between a thought and the activity of the brain's neurotransmitters. The central and governing meridians are...[the] link between the {radiant circuits} and the meridians. They jump the course like {radiant circuits} but are more efficient because they have established pathways like meridians...The {radiant circuits} can instantly go wherever they are needed, but the meridians are tied to specific pathways...The spleen meridian governs the spleen and pancreas, and it is also involved with the thymus, lymph nodes, tonsils, and bone marrow...With its dual citizenship as a {radiant circuit} and a meridian and its responsibilities for blood supply, metabolism, homeostasis, antibodies, and nourishment, spleen is the leader of the pack [of all the ten different {radiant circuits}]. Its model of protection is to foster a vital defense by maintaining a vital organism. And the same techniques that empower spleen also support each of the other {radiant circuits}.*" (pp. 244-245, italics added)

21. THE RADIANT ENERGIES BALANCE (REB)sm AS A TRANSFORMATIVE AND THERAPEUTIC ASANA/MUDRA

[This section is in process. The primary sources are quoted without my translating them]

21.1. INTRODUCTION

All the specialized or energy kinesiologies involve movement broadly defined. They differ from the mainstream kinesiologies in that they include "movement of energy" in their programs. Certain practices in the field of specialized or energy kinesiology and energy/information psychology recommend assuming specific poses or postures (asanas) while performing or saying specific things (e.g., Wayne Cook hook-up, Brain Gym® activities, Touch for Health procedures, Donna Eden's Energy Medicine, and the REBsm posture). The general idea behind this is that assuming the posture makes the task more precise, efficient, deeper, or effective. What you hook up or connect are the various energy points and centers. In the REBsm protocol, we assume that the posture will speed up the process of transformation making it easier to transcend and include the issue into a broader context which, hopefully, will be more in tune with the essential self. The assumption is that this posture engages all of the body's energy/information system to address the issue presented for balancing.

The Radiant Energies Balancesm posture involves hooking up the four special meridians which have dual roles as regular meridians as well as radiant circuits. You hold the spleen strengthening point **below the left** breast, which is the front spleen energy center (chakra) (Co and Robins, 2002, pp. 16-19) and connect it with the triple warmer sedating point (Eden, 1998, 2002b). Eden says that you can hold the opposite posture but the spleen energy center is only located on the left side. To engage the other special meridians, central and governing, you place your tongue gently just behind the upper teeth.

Specific finger positions (mudras) are used for diagnostic purposes. For instance, in the fields of Applied Kinesiology and One Brain (Three In One Concepts) "finger modes" are used to access various aspects of the energy/information system. These finger modes serve as codes to indicate specific aspects of the system that need balance or to determine a priority intervention. Not much controlled research has been conducted on this area but there is a great deal of clinical and applied information that has been codified in the various systems which use "finger modes."

Judith Swack (2001a and b) (see her contribution in the trauma section 16.4. of this paper) points out that people, when stressed, naturally assume certain postures and gestures. She calls the practice of stimulating various meridian end points "natural bio-destressers." The original title of her address to the 2001 Energy Psychology Conference International was "Energy psychology isn't weird. It's biology." Donna Eden refers to the stress release points located just above your eyes the "Oh my god" points because that is the natural gesture and exclamation for someone who has been shocked. Touching the finger tips of the hands together (the "prayer position") is common throughout the world. The reason for it, energetically speaking, is that half of your bilateral meridians have end points in the region of the finger tips. Before I first learned the special kinesiologies in 1989, I wondered about these things and found the explanation: you're manipulating the buttons and switches of your energy/information system!

From standard psychophysiology, research has demonstrated the influence of facial muscles on mood. By simply placing your mouth in a smiling facial configuration (i.e., holding a pencil in your teeth) your mood brightens. (Ekman & Davidson 1992; Ekman, Davidson, & Friesen 1990; Johnston, date ?2002; Levenson, Ekman, & Friesen 1990; Lienhard, date ?1997; Poole, date ?2002).

The 2nd and 3rd steps in the "Instant Calming Sequence (ICS)" (Cooper, 1991) are to smile and to change posture. The whole sequence can be learned quickly and used collectively to quickly neutralize negative stress pressures. STEP 2. Flash a Smile: "Learn to relax your face into a little smile--or at least don't frown--when you find yourself in a tight spot. Stress researchers say that the slightest smile--even when you don't feel like smiling--may increase blood flow to the brain and help 'reset' the nervous system so it's less reactive to stress." and STEP 3. Shift your stance: "A common stress response, known as somatic retraction, is to assume slouching posture: chest tightened or collapsed, shoulders rolled forward and down, abdomen, back or neck tensed. This position not only restricts breathing and blood flow to the brain, but it also creates muscle tension, slows reaction time and can magnify any feelings of panic. The solution: Just shift your body around. Pretend a sky hook is gently lifting your spinal column upward from a point on the top of your head. You'll feel less tense when your head is up, neck long, shoulders broad and loose, pelvis and hips level, back straight and abdomen tension free. Also, simply changing positions--getting up if you're sitting, sitting down if standing--can do a lot to release pent-up emotions."

When I was teaching psychology students at university I instructed them to control disturbing emotions to: gently hold the left forehead stress release point, breathe through the right nostril, smile, and turn the head to the right. It's cheaper than therapy and drugs!

This "smiling effect" has to do with Porges' parasympathetic/vagal "social engagement system" which has intimate connections to the other cranial nerves such as the facial muscle nerve which controls smiling among other things. "The social engagement system has a control component in the cortex upper motor neurons that regulates brainstem nuclei; i.e. lower motor neurons controlling

special visceral efferent pathways to control: eyelid opening (e.g. looking); facial muscles (e.g. emotional expression); middle-ear muscles (e.g. extracting human voice from background noise); muscles of mastication (e.g. ingestion), laryngeal and pharyngeal muscles (e.g. vocalization and language); and head-turning muscles (e.g. social gesture and orientation). Collectively, these muscles both regulate social engagement and modulate the sensory features of the environment. The neural control of these muscles contributes to the richness of both social expressions and social experiences." (Porges 2001, p. 124)

21.2. TRADITIONAL MUDRAS/ASANAS PRACTICES

21.2.1. THE POSTURE OF ECSTASY

Taken from www.omphalos.net/files/meditate/ECSTASY.TXT (quoted in full)

"(Original source: Felicitas D. Goodman (1986) 'Body posture and the religious altered state of consciousness: An experimental investigation,' Journal of Humanistic Psychology, Summer, v. 26, No. 3, pp. 81-118. Author's address: Cuyamungue Institute, 114 East Duncan St., Columbus, OH 43202.)

"The nature of ecstatic states of consciousness may be encoded in their postures. The types of visions, prophecies or healing abilities that accompany ecstatic states may have less to do with the religious content surrounding the ceremonies of ecstasy than with the posture assumed by the people undergoing the ecstatic experience."

"This unusual hypothesis is being proposed by psychological anthropologist Felicitas D. Goodman, PhD, based on observation of people in ecstatic states and her experiments training people to enter such states of consciousness. In some of her earlier research, Dr. Goodman learned that she could induce an ecstatic state in a subject through the use of a gourd rattle similar to that used in many primitive shamanistic ceremonies. While a subject, alone, or in a group, walked in a circle, or simply sat, Dr. Goodman would shake this rattle in a steady manner for 15 minutes. The use of the rattle was based on the hypothesis that 'acoustic driving' affects the functioning of the brain, blocking the verbal left hemisphere and opening access the intuitive right hemisphere. Within five minutes, most subjects were giving indications of being in an altered state of consciousness. At the end of the experiment, their verbal reports confirmed that they had been experiencing something resembling an ecstatic state, including visions and variations in body image. Noting that the content of these visions seemed to vary as a function of which subjects had remained standing and which had become seated, Dr. Goodman ran a series of experiments to specifically test the effect of posture."

"To obtain experimental postures, she went to ethnographic resources to locate either photographs of shamans in ecstasy, or artistic renditions of this state. She found five different postural positions. In her subsequent experiments, she would ask her subjects to assume a particular posture, commence the rattle playing for 15 minutes, then obtain their reports. She found that these reports were highly consistent for a given posture, but differed between various postures."

"For example, one posture was similar to sitting in meditation, except that the legs are both tucked under the body and turned toward the right. Subjects experienced color sensations, spinning and

strong alterations in mood. This posture was that assumed by Nupe Mallam diviners. According to the literature, the divination experience begins by alterations in moods."

"In another posture, subjects stood erect with their heads back and their hands clasped at the abdomen. Subjects reported warmth, a flow of energy rising, and a channel opening at the top of the head. According to the ethnographic literature, this posture had been associated with healing, involving the flow of energy. In a similar manner, the other postures tested produced experiences resembling the reports of native shamans who assume the posture in their trance work."

"The author can only speculate concerning the mechanism by which posture affects the content of ritualized trances. We know that posture affect mood states. It is perhaps by their effect upon a wide variety of psychophysiological variables that posture affects the course of ecstasy."

Ecstatic Body Postures : An Alternate Reality Workbook

Taken from Belinda Gore. www.eseds.com.hk/ecstatic-body-postures.html (quoted in full)

"Specific body postures reappear in the art and artefacts of world cultures, even those widely separated by time and distance. What are these images of unusual postures telling us? Anthropologist Felicitas Goodman discovered that people who assume these postures while in trance report strikingly similar meditative experiences. The results from this research are astonishing, proving that certain body gestures and movements, when properly worked with, actually trigger us into accessing altered states of consciousness."

"With clear instructions and illustrations, Belinda Gore, one of Dr. Goodman's prominent students, reveals to us these shamanic postures and how to work with them. *Ecstatic Body Postures* is a 'must read' for anyone interested in meditation, shamanic practice, yoga, and body work."

Ecstatic Body Postures: How Ordinary People Can Experience Non-Ordinary Consciousness

by Belinda Gore ? www.berkeleypsychic.com/Reader/archive/may99/ecstatic.html (quoted in full)

"All around the world, the artwork of indigenous people reflects an ancient tradition of ritual body postures that create doorways to altered states of consciousness. These images—found on cave walls or totem poles, in delicate gold or silver work, or in simple terracotta pottery—have been available to us for centuries. However, twenty-five years ago [about 1980] anthropologist Felicitas D. Goodman discovered that these figures are not just an artisan's fanciful creation. They are instead refined and precise visual instructions for triggering a neurological process in which normal, ordinary people can enter non-ordinary consciousness, a state of expanded awareness in which we engage a wide spectrum of meta-normal capabilities and experience what our ancestors called the world of the spirits."

"The beauty of these ritual postures is in their simplicity. The key is the great common denominator of all humanity, the human body. Regardless of race, gender, or ethnic identity, we all have in common with our most ancient ancestors the structure and functioning of our physical bodies. The organization of the human nervous system, the endocrine system, the mechanics of circulation and digestion are all pretty much the same as they were 30,000 years ago. This similarity in the human body's architecture allows post-modern city dwellers to enter the so-called Alternate Reality through the same doors as Neolithic medicine women or pre-Columbian Mexican shamans."

"Dr. Goodman discovered the uses of these ceremonial postures as an outcome of her research on glossolalia, commonly known as 'speaking in tongues.' Through careful observation of ministers teaching their congregations to go into trance and be possessed by the Holy Spirit, she identified several generic factors necessary for a successful trance experience. First, a sacred space must be established. Any place can become sacred space if it is separated from the busyness of everyday activities. In my home I [Gore] have a special room where I [Gore] keep my personal sacred objects—stones and feathers, carved Zuni fetishes, and masks—and where each morning I greet the spirits with prayers and gifts of blue corn meal or sweet grass, in the tradition of Native Americans. In workshops we use a gourd rattle to call upon the four directions, the sky and the earth, to invite those who inhabit the Alternate Reality to join us and to establish our meeting room as sacred space."

"The second necessary condition is that the people who are preparing to engage in ecstatic trance do so willingly, with the anticipation of a good and sacred experience. Occasionally people ask if wandering into the spirit realm isn't it an invitation to be inhabited by dark or destructive forces. When we enter the Alternate Reality through ritual body postures, we enter through very specific doorways, defined by the postures themselves. It is just like being invited into someone's home rather than wandering lost and aimless through the streets of a foreign city. In eighteen years of teaching ecstatic trance workshops and working with clients in my psychotherapy practice, I [Gore] have learned that ritual body postures provide a safe means for even inexperienced people to experience non-ordinary consciousness."

"The third factor necessary for ecstatic trance is the presence of a consistent, repetitive sound that provides an auditory cue for the nervous system to shift into perceiving non-ordinary reality. Our bodies are hard-wired for this heightened state of consciousness but we have to activate the program. The rhythmic sound of rattling or drumming is ideal. Dr. Goodman found that a rattling rhythm of about 200-210 beats per minute, the same rate she heard at the Deer Dances of the Rio Grande Pueblos, works best. In workshops and individual sessions, fifteen minutes is long enough for people to make the shift of awareness into the trance state but not so long that the nervous system is exhausted from the unaccustomed activity. While live rattling or drumming is preferred, an electronic version has the same effect."

"Finally, some method for silencing the mind's inner dialogue is essential. By focusing on the breath, the steady inhalation of air into the nostrils then a quiet exhalation, and by counting the breaths for fifty complete cycles or about five minutes, anyone can begin to slow down the steady stream of thoughts and experience a more quiet mind. When the mind is too active, it attempts to shape the altered perceptions to fit its accustomed patterns of thought. Silencing the mind's chatter permits the possibility of other worlds."

"Intrigued by a newsletter article by a Canadian psychologist considering the effect of body postures (mudras) on meditation, Dr. Goodman combed the ethnographic literature for photographs or drawings of body positions that might be used in a religious ceremonial context. Working with individual subjects, she discovered that the addition of ritual body postures to the method already described transformed the trance experience. Postures are designed for fairly specific purposes: healing, divination, shapeshifting, celebration, and initiation into the mysteries of death and rebirth. The influence of the postures is strong enough to override even cultural differences. Agnostic

computer programmers, for example, can undergo profound shamanic experiences during the fifteen minutes of an ecstatic trance session."

"Research has shown that during ecstatic trance remarkable changes occur in our bodies. The blood levels of stress related hormones drop dramatically, while the brain increases the synthesis of beta-endorphins, which are responsible for the signature feeling of well-being that makes trance so appealing. Blood pressure drops while the pulse rate increases, a rare combination usually associated with the preliminary stages of dying. Shamans have traditionally said that they die during trance, and these data suggest they were well aware of what we consider to be sophisticated knowledge of physiology. Perhaps the most dramatic finding is that when brain waves are measured with direct current, subjects who in normal states of concentration registered around 100 microvolts of current increased to 2500 microvolts during ecstatic trance. Clearly something happens in the brain during trance that extends our normal capacities beyond what we can imagine."

"When Dr. Goodman began her research in 1977, she could not have guessed where it would lead. Her work unveiled a simple secret, that by aligning and adjusting our bodies in very specific ways, we can consciously enter the wonderful and mysterious realms known to all spiritual traditions, variously called the Dreamtime, the Garden, the Sky World, and Heaven. As we stand at the cusp of a new millennium the prophecies of many indigenous people say that this is the darkest of times, when the light of Spirit is only a flicker. Ecstatic trance with ritual postures offers guidance and support through this difficult passage as we emerge into the next stage of human possibility."

21.2.2. MUDRAS (MAINLY HAND GESTURES/FINGER POSITIONS)

21.2.2.1. INTRODUCTION

Wayne Muromoto (1999) "Mudra in the Martial Arts". Special to Furyu Online ?
www.furyu.com/onlinearticles/mudra.htm (quoted in full)

"One of the more curious things that I encountered in my martial arts training was the use of mudra in combative arts. Mudra (Japanese: in), for those who aren't familiar with them, are these weird hand gestures that are derived from esoteric Buddhism (mikkyo), particularly the Tendai and Shingon sects. These gestures are supposed to generate spiritual focus and power which then are manifested in some way externally."

"Unfortunately for the greater amount of martial artists in the modern budo (martial ways), mudra are not part of their training. Most 'modern' budo are based in some way on modern concepts of physical education and sports training, and do not include, unless a particular teacher is himself/herself an adherent of a Buddhist sect, the use of esoteric Buddhist rituals, such as mudra, mantra (chanting or words of power), and mandala (inscriptions, paintings or scrolls that can create spiritual energy). This, by and large, includes judo, kendo, iaido, kyudo, karatedo, and even aikido as it is presently formulated."

Miller (1996) states that "...*mudras* [are] precise ways of holding the hands, fingers, and body to represent specific acts of offering, saluting, or understanding, and to produce certain energetic effects... In classical Indian dance... hand mudras play three roles: as aesthetic artistic expressions;

as energetic movements that directly impact both dancer and audience; and as iconographic pointers--symbolic representations of historical and/or religious significance." (Miller, pp. 81-82)

"Types of mudras run the gamut from natural gestures we use in everyday living to hand positions that work on deep levels during meditation. Gestures we use every day represent, for the most part, simple actions, such as greeting someone through an outstretched hand, calming another by raising a hand, blaming by pointing a finger, or gestures in dance and theater which are conventional methods for supporting the word, movement, or songs used in the performance. On a more esoteric level, we see mudras as religious gestures which assume metaphysical meanings, such as those carved into devotional statues depicting episodes of a Buddhist legend, or those used in Vedic rituals to denote various gods and goddesses... Mudras often convey wisdom teachings...Some mudras...employ the entire body. Others involve only the hand, isolating the fingers in specific combinations to evoke particular energies in precise ways. In these *hasta*, or hand mudras, the fingers and hands take on different conceptual meanings, depending on the spiritual orientation one adheres to. The hand is like a miniature universe representing a complete cosmological system. In the Buddhist and yogic systems, the hands represent the sun (right) and the moon (left), intelligence and meditation. In both systems the fingers are associated with the five elements, but variations abound as to which fingers represent which element...The underlying power of mudra lies in its actual *energetic* effect.... [M]ost ...can immediately appreciate their impact, although the effects can be subtle to the causal practitioner. (Miller, p. 82)

"The *Sharira Mudras* [are] structural gestures (*sharira* = body), these mudras utilize fingers, arms, and pressure points to channel the breath into the different spaces in the torso. We use them to prepare the body structurally so it can receive the breath physically... [P]osture in yoga means not only a physical position but a mental attitude that is firm yet pleasant; steady while relaxed..." (Miller, p. 84)

"The *prana nadi mudras* are technically energetic mudras (*prana* = life force, *nadi* = channels) that work with the breath. They channel breath and prana into the lungs and torso in particular configurations.(Miller, p. 85)

"The *merudanda mudras* are also energetic mudras (*meru* = Mount Meru, the spine; *danda* = staff), but their use brings prana into deeper regions of the central nervous system. They do not so much channel the actual breath...as they do the life force itself." (Miller, p. 86)

The *prana kriya mudras*: "Each mudra contains... both a practical application and an esoteric symbology. The symbolic representation hidden within the *prana kriya mudras*...also called ... the 'gesture of wisdom'--fire combines with air as we touch together the thumb and the index finger.... The thumb represents the Universal Self; index finger the individual self; middle finger the ego; ring finger, maya, the illusory world; and the little finger, worldly actions and reactions." (Miller, p. 87)

21.2.2.2. SIGN LANGUAGE OF THE SOUL: A Handbook for Healing

by Dr. Dale Schusterman,

book excerpts taken from website www.signlanguageofthesoul.com/index.html

Schusterman (2003) has developed a complete psycho-physical-spiritual healing system based on mudras derived from ancient literature, especially the Kabbalah's "Tree of Life" model. Although he relates his approach to that of Asian systems (Ayurveda from India and Traditional Chinese Medicine and the Chakras), his primary model is that of the "Tree of Life."

21.2.2.2.1. INTRODUCTION TO ENERGY HEALING

"We live in a sea of energy. Radios, televisions, cellular phones, and wireless computer networks operate on unseen energy waves. Our bodies also operate within a human energy field that some call the aura. Electric fields give off magnetic frequencies allowing scientists to document these fields with their instruments (EEG, EKG). **New detectors can sense the biomagnetic fields of the heart from more than 15 feet away!**"

21.2.2.2.1.1. Acupuncture

"The pre-eminent field of energy healing today is Chinese medicine or acupuncture. Dating back thousands of years, this ancient science has found a great audience in the West for one major reason - it works!:"

21.2.2.2.1.2. Energy Techniques

"In an era when science is excelling in taking apart the cell, even to the genetic level, many are drawn to expand away from the smallest parts to embrace a holistic approach to healing. People are discovering that they are capable of moving the energy within and around their bodies through breathing techniques, yoga exercises, Qi Gong, and so on. They do this because they feel better, think better, and it improves their health."

"Laying on of hands has been practiced for millennia, however, in recent years it was considered only a part of the religious domain. **People know the value of being touched by others in a loving and caring way.** Scientific research has validated the positive effect this has in the healing process. We know instantly when someone touches us if we like their 'energy' or not."

21.2.2.2.1.3. Energy Healing for Stress Reduction

"**If energy healing does nothing more than reduce stress, then it has a dramatic biochemical effect on the body.** Balancing the hormones of stress will cause an improvement in digestion, assimilation, elimination, circulation, and mental function. There is great evidence that energy healing accomplishes much more than this."

“Many holistic therapists now incorporate forms of acupuncture, polarity therapy, chakra balancing, and other forms of non traditional healing. A search of any health oriented magazine today will show a wide variety of ‘energy therapists’ to choose from.”

21.2.2.2.1.4. How to Choose an Energy Healing Practitioner

“The most important factor to consider is the person(s) with whom you will be working. Although the technique a healer uses is important, of even greater significance is the person giving the treatment. In energy healing, the method will only take you so far. After that you are reliant upon your practitioner’s perception and insight, and the subtle energy that the he or she can transmit. The holistic healer must take care of his or her own health and be able to transmit a clear, focused healing energy to the client. This cannot be taught, but it can be cultivated. It is something we should all strive for.”

21.2.2.2.1.5. Do it Yourself

“While it may take years to learn acupuncture, there are many first aid protocols one can learn from books and short classes. Many of the energy healing procedures are available for the general public to learn through weekend courses and seminars. These are not meant to substitute for traditional medical procedures, but they can greatly assist in a person’s wellness, stress reduction, and self-empowerment.”

21.2.2.2.1.6. Sign Language of the Soul

“The Sign Language of the Soul procedures are a new form of energy or vibrational healing. They work on the concept of resonance. **The map of the energy body (soul) is the same map that operates within the body, although in a different dimension.** When you stimulate one map, there is resonance to the same area in the other. In this way one can attune the physical nervous system to the soul and thereby achieve great balance and healing.”

21.2.2.2.1.7. Anyone Can Do Their Own Energy Healing

“While the book is geared towards holistic healers, **anyone can learn the quick and easy centering process. It takes less than a minute to perform.** Instead of taking the time to learn the four balancing procedures, you can look at the healing symbols which accomplish the same thing. Therefore, the learning time to become proficient at these procedures is quite minimal and the benefits for applying them have great potential.”

“The following pages have excerpts from the book and give some detail about the various parts of this work. Some of the topics may be new to you, so just read it for an overview. **You do not need to know all the inner workings of a television in order to enjoy a show.** Likewise, you do not need to understand all the circuitry of the human nervous system-soul connection in order to apply the balancing procedures.”

21.2.2.2.2. SIGN LANGUAGE OF THE SOUL CONTENTS

21.2.2.2.2.1. Section I, "physical methods,"

“This first section sets the stage for understanding the healing process. This section describes the basic philosophy of the work and what you can expect to accomplish with it. You will see how the Tree of Life patterns manifest in the physical body, and you will learn a simple muscle test that will enable you to evaluate these patterns.”

21.2.2.2.2.2. Section II, "Tools,"

“The methods used to tune the body to the Tree of Life are developed in these chapters. You will start to learn a Sign Language of the Soul, including the hand signs (mudras) based on the Hebrew letter Shin. These tools open the Kabbalistic patterns in the body. You will also learn how to use muscle testing to demonstrate that this is not just theory; it really works.”

21.2.2.2.2.3. Section III, "Anatomy of the Tree of Life,"

“Here you will learn the various pathways of the Tree: the 10 Sefiroth, the 22 letter pathways, and the four worlds. We will work with multiple levels of the worlds and you will need to know which ones are active in the body.”

21.2.2.2.2.4. Section IV, "Activating the Tree of Life,"

“This section describes how to awaken the spiritual blueprint within the body. The four dimensions of existence have analogs in the body and there are four doorways to access them. Here you will learn how to acknowledge the deeper aspects of the Tree.”

21.2.2.2.2.5. Section V "Balance,"

“Balance’ puts all the information to practical use. Most distortions in the body-mind resolve with one of the four balancing procedures presented here. You will find detailed explanations of the pathways, and learn how to test and balance them. You will immediately be able to apply these methods to yourself and others.”

“To make things easy, there are healing symbols you can use in place of the four balancing procedures. You will also learn how to bring hidden imbalances to the surface. Once revealed, they can be corrected with the Tree of Life activation, and one of the four balancing procedures.”

21.2.2.2.2.6. "Final Thoughts”

“Final thoughts look ahead to the next steps in the evolution of this work.”

21.2.2.2.2.7. Appendixes

“Here you will find a synopsis of all the hand signs, words, and balancing procedures.”

21.2.2.2.3. INTRODUCTION

“Many mysteries of the human body and mind are far beyond what science is currently capable of explaining. However, **we can learn much about ourselves when we study the ancient teachings that reside at the core of the major wisdom traditions** (Judaism, Christianity, Hinduism, etc.).”

“**Sign Language of the Soul demystifies these spiritual concepts and shows how they provide a blueprint for understanding the inner circuitry of the body-mind.** With this map in hand, we can quickly and efficiently balance, heal, and rejuvenate many of our physical, mental, and emotional issues. This method is NOT about religion. It is a practical set of exercises that anyone can.”

21.2.2.2.4. KABBALISTIC HEALING

“The term Kabbalah means tradition, or that which is received. Although the name Kabbalah dates back only to the 12th century, it is said that HaShem (literally, The Name), or God, originally taught it to Abraham when He formed His Covenant with him. This knowledge was passed on to each generation orally, from teacher to student. It is the Jewish mystical tradition.”

“**The purpose of Kabbalistic study is union with God.** Although there are many other applications for a study of the Kabbalah, this is primary. In Sign Language of the Soul, the Kabbalistic Tree of Life serves as a model for deep balancing and healing in the body-mind.”

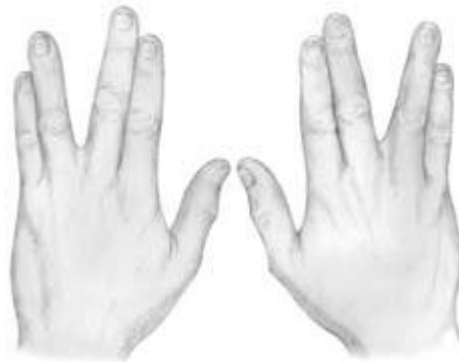


Figure 21.1. Levitical Blessing Mudra

“Numerous therapeutic systems of healing relate the human body to universal or spiritual maps. Chinese medicine and acupuncture operate on the premise that the elements of man/woman are analogous to the five elements of nature. Qi Gong, Tai Chi, and yoga have similar correspondences. **Man/woman is seen as an expression of universal forces, which have structure, hierarchy, and purpose.**”

“There are few models from the Western wisdom traditions that actively explore this same type of relationship, of Cosmos to man/woman. One such system that does provide a remarkable linkage of God to human is the Kabbalah. As such, it lends itself to the development of a unique system of healing.”

21.2.2.2.5. THE HISTORY OF HAND SIGNS

21.2.2.2.5.1. introduction

“Specialized hand positions called mudras are used to seal, or lock into the body, certain energies or states of consciousness. **You can use these hand positions to center yourself for healing and balance.** Historically they have many uses, but in this work you can achieve harmony and health with the simple movements of your hands.”



Figure 21.2 Ajna Chakra mudra

- **“The Polynesians use special hand positions in their dance rituals.** They are used as a non-verbal narrative tool that expresses the story they are telling.
- The folklore beings of many Asian cultures are depicted with different mudras in their hands. **Mudras are also prevalent in the hands of many Asian religious masters,** and in images of their deities..
- Statues and paintings of **the Buddha show his hands in different mudras,** and these mudras are still in use in Buddhism.
- Statues of Hindu deities show different mudras in their hands. **Practitioners of yoga use mudras to focus energy** in certain ways during the postures (asanas), and especially during meditation. Each mudra has a mantra or Sanskrit power phrase associated with it, and the two often function together. We have all seen the thumb tips touching the index fingertips in people who are meditating.
- **Paintings and engravings depict Jesus, angels, saints, and other biblical personalities with their hands showing specific mudras.**
- **Kabbalistic literature includes many diagrams of the hands** with Hebrew letters on the different joints, and modern rabbis continue to use the blessing mudra of the Levite priests.”

“The ancient masters, saints, and teachers were communicating a message with their hands. These hand positions were not random, as they tell us something about the message or perspective of the teacher. It is not uncommon for people in deep meditation to have their hands unconsciously form specific mudras. The hands can, and do, reflect deep inner states of consciousness.”

21.2.2.2.5.2. Clinical Kinesiology

“Alan Beardall, D.C., one of the original applied kinesiologists, made many great contributions to the collective knowledge of the subject. One of his many accomplishments was the development of the therapeutic system that he called ‘Clinical Kinesiology.’”

“Central to this integrative approach to natural healing was the use of hand mudras. He called them hand modes. He once observed a patient spontaneously make a specific hand sign that altered the response of the muscle he was testing. This led him to research different hand positions and their effect on the body. **Dr. Beardall developed several hundred of these hand modes that represented all parts and functions of the body.**”

“For instance, the hand mode for a subluxation (a misalignment of a vertebra in the spine) is placing the side of the thumb against the side of the little finger at the last joint. If a patient places this mudra in one hand and a strong muscle weakens upon testing, it indicates that there is a subluxation somewhere in the spine. It is then possible to continue muscle testing while touching down the spine to find which vertebra counteracts this weakness. This is the vertebra that needs correction. Touching the vertebra without the hand mode might not weaken a muscle and so not reveal the underlying problem.”



Figure 21.3. The Subluxation Mudra

“**The hand mode acts as a neurological filter or focus point for the body.** This is like sorting a list of names by the first name or the last name or the city the people come from, depending on the filter you have chosen. Beardall’s hand modes enable the practitioner to get specific information from the nervous system. They help to give context to a dialog that you are having with the body. It is the difference between asking a general question and asking a specific one. This is **a great tool for getting to deeper layers of distortion and imbalance in the body.** With this technique, a doctor could literally “ask” the body where the problem lay, and if it needed acupuncture, nutrition, or spinal manipulation to correct it.”

“We communicate so much with our hands that **harnessing this tool can be a way to enhance our conscious dialog with the body.**”

21.2.2.2.5.3. The Master Circuit

“Many years ago, I realized that I could place the mudras in my hands and determine their effect on my body. I would spend some time each day doing very subtle balancing of my system as preparation for meditation.”

“In October 1983, at the end of a period of deep inner contemplation and work with some new modes that Beardall had just developed, I had a life transforming experience. **My hands spontaneously went together in a hand sign** that I had never seen before. I said to myself, “I wonder what this means.” There was an instantaneous reply. **I heard a loud voice say, “This is the Master Circuit!”** The voice came from all sides of me. I was stunned. Not one to hear voices, this was a memorable experience, because it was definitely not my little brain speaking to me.”



Figure 21.4. Master Circuit Mudra (Yesod – IX)

“Furthermore, the effect of the mudra lasted in me for hours. Without going into more detail, this hand sign worked in my system like nothing I had ever experienced. It took approximately 13 years before I fully understood this mudra.”

“This mudra, which was my key to the Master Circuit, was the first of many hand signs given to me in my inner contemplations over the years. The mudra was active over only certain areas of my body, and the design of the active areas was quite different from anything I had ever seen.”

“Soon after receiving the Master Circuit mudra, I recalled having purchased a book on the Kabbalah several years earlier. I did not think much of the book, or the Kabbalah, at that time, but I did remember the diagram of the Tree of Life.”

“I retrieved the book and found that **the new mudra was active over the locations of the 10 Sefiroth, the major energy centers of the Tree of Life.** This was the beginning of my research into the Kabbalah and how it is used to activate the spiritual patterns in the body. Since then, I have spent much time contemplating the mudras and the energies of the Kabbalistic Tree of Life.”

“Early on, I had a limited number of mudras with which to work, but something was definitely happening with the ones I had. They were not enough, however, so I kept meditating, working on myself, and searching for new insights. Some mudras took over a decade to understand, some almost two decades. To this day, I continue to gain a deeper understanding of how it all fits

together. I have no illusion that this system of healing is complete, as I frequently receive new insights about this work.”

“Often I would spend months seemingly bogged down in what I thought was futile, only to find that I was being shown a completely new perspective. **It was like climbing a ladder backward. I could see where I had been, but not where I was going.** I gradually gained confidence that there would always be another rung to climb. Slowly, but surely, an unseen force guided me to each new level. Each level is but a subset of a greater level, but all the levels look the same. **The anatomy of the Tree of Life is always the same whether we are discussing quantum physics, the function of the liver, or the meaning of Genesis.**”

“**Spiritual masters or teachers use mudras to express the state of consciousness they are in or as a method of transferring that energy state to others.** In our case, **we will use the mudras as inputs to tune the body to the different frequencies.** We will also use them to tune others to these frequencies.”

“**The hands communicate to both the external world and the inner awareness.** Our ability to observe the body’s response to a hand sign with muscle testing, will tell us where we can, and cannot, go with this work. This will keep us working in cooperation with the Inner Being, which is connected to our nervous system ‘until death do us part.’”

21.2.2.2.5.4. Alternatives to the Hand Mudras

“The hand mudras presented here are all fairly easy to make, although they will be easier for some people than for others. I hope that you will find them interesting and experiment with them to gain experience. This work grew out of using these hand signs and evaluating their effect on the body.”

“However, it is important to emphasize that **it is not necessary to use the hand mudras to do the balancing procedures** described in this book. There are several alternative methods for activating the Kabbalistic patterns in the body.”

“For instance, **each hand mudra correlates with a specific Hebrew or Sanskrit word.** Many of the mudras correlate with specific biochemical substances or places you can touch on the body. If you find the mudras confusing or difficult, do not despair. **You do not need to be a finger contortionist to learn these methods.**”

“Looking at the pictures of the hand signs works as well as placing them into the hands. If you have difficulty making a certain mudra and you are unsure of how to pronounce its corresponding word, then just look at the picture of it. This will have the same effect as if you had placed the mudra in your own hands.”

21.2.2.2.5.5. What the Hand Signs Do

“Although I initially learned the hand signs through research into my own system, I soon found that when they worked in me, they would also work in everyone else. “

“The hand signs presented here focus the nervous system on different energetic levels or states of awareness. Most of these levels are beyond normal waking consciousness, although the mudras themselves do not necessarily cause a conscious shift in consciousness.”

“They cause the body or nervous system to resonate, for a moment, to that level. If you have the sensitivity and are able to shift your state of awareness, then the mudras will take you there. For most of us, they just cause the physical system to resonate to that consciousness so that a healing process can occur.”

“You must understand that working with the hand signs and the balancing procedures will cause changes. You might feel spacey or suddenly hungry as you experiment with them. Do not be surprised if emotional issues begin to surface or if new insights come to you as the result of placing your fingers in different positions.”

“The mudras are powerful, especially when used with the proper visual focal and when used at the right time. Therefore, **anyone with psychological or physical problems, or anyone using mind-altering drugs or psychoactive medications, must not use these methods without supervision by a qualified therapist.**”

21.2.2.2.6. THE HUMAN FORM AND THE TREE OF LIFE

21.2.2.2.6.1. introduction

“The Tree of Life symbol encapsulates many principles of the Kabbalah. It consists of 10 Sefiroth, or spheres of energy and consciousness, which are connected by 22 gates or pathways. **It is a tool of great significance, because it is a template for the structure and function of the soul. The body and mind are also built on this same template.** The *Sign Language of the Soul* procedures enable you to activate, in the body, all of the pathways on the Tree of Life.”

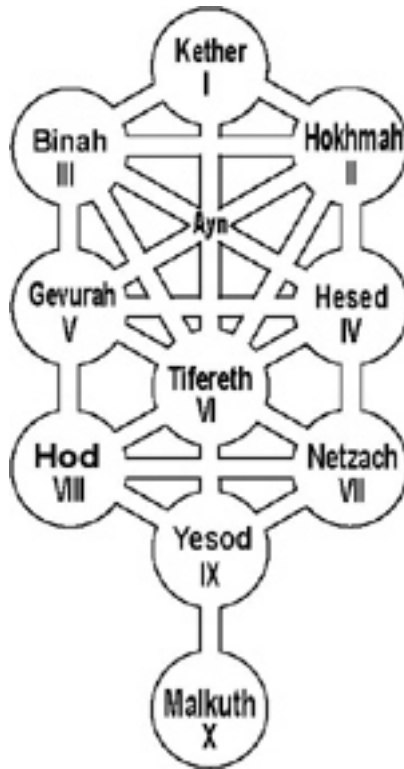


Figure 21.6. The fallen Tree of Life

“The following sections, excerpted from the book, show how the symbology of the Tree relates to the human form.”

21.2.2.2.6.2. “10”

“There are **Ten Intangible Sefiroth**, the number of the ten fingers, five opposite.”

“The 10 fingers (toes) represent the 10 Sefiroth, the energy centers of the Tree of Life. They also correlate with the 10 openings in the body. Seven are in the head (two eyes, two nostrils, two ears, and the mouth), plus the anus, the penis/vulva, and the umbilicus (closes at birth). The locations of the Sefiroth around the body are shown below.”

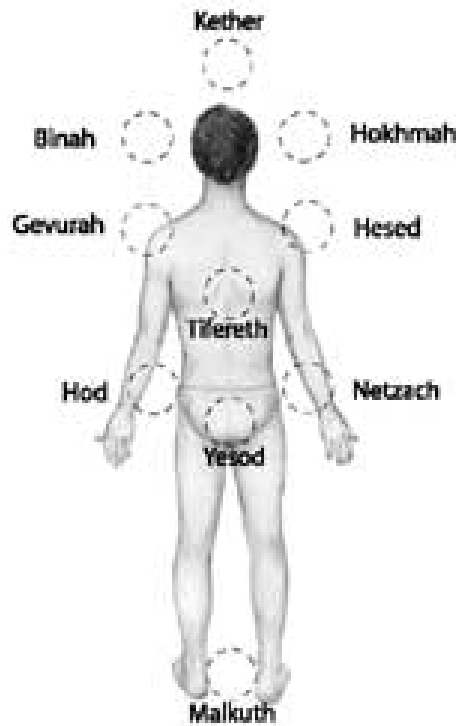


Figure 21.7. Tree of Life superimposed on the body

21.2.2.2.6.3. “22”

“The number 22 is a special number in the Kabbalah. Twenty-two pathways on the Tree of Life connect the various Sefirot. These pathways correspond with the letters in the Hebrew alphabet. In the body, there are 22 individual bones in the skull. There are also 20 amino acids and 2 stop signals coded by the DNA and these also correlate with the Hebrew letters.”

21.2.2.2.6.4. “26”

“Five of the 33 embryonic spinal segments eventually fuse together to form the sacrum, and four segments fuse to become the coccyx. This leaves the spine with 26 individual bones:”

- 7 cervical vertebrae
- 12 thoracic vertebrae
- 5 lumbar vertebrae
- Sacrum
- Coccyx”

“There are also 26 acupuncture meridians, when we include both sides and the midline meridians. The number 26 is one of the most important in the Kabbalah, as it is the numerical value of the Tetragrammaton, the four-letter name of God, YHVH (Y=10, H=5, V=6, H=5). In addition, it is the sum of the numbers of the four central Sefirot of the Tree of Life (1+6+9+10=26). Therefore, the sum of the central column Sefirot, which resides over the spine, equals the number of bones in the spine.”

21.2.2.2.6.5. “32”

“The 32 pathways on the Tree of Life consist of the 10 Sefiroth and the 22 gates or pathways that connect them. In the human body, there are 32 bones in each extremity. A special Tree exists in the mouth where there are 32 teeth (in the adult).”

21.2.2.2.7. CHAKRA BALANCING

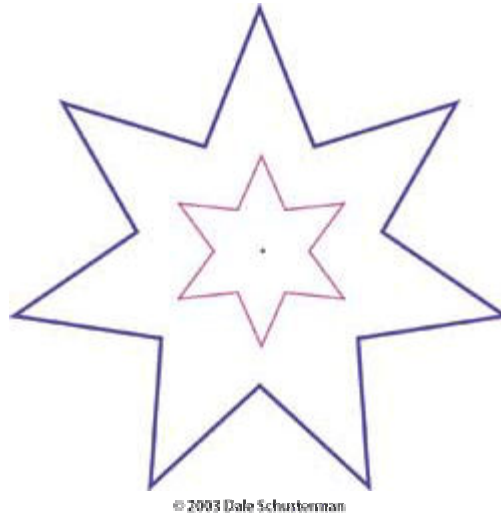


Figure 21.8. Chakra Balancing Symbol Star

“Chakra is a Sanskrit word meaning wheel. **Chakras are vortex wheels that move energy from one state to another.** There is much literature on the chakras, dating back to the Tantric Hindu tradition. Tantric philosophy describes these energy centers as focused areas of consciousness.”

“There are literally thousands of chakras around the body, but only six major chakras align with the spine. A seventh chakra, called the crown, which sits above the head, contains all the frequencies of the lower six. The chakras are not physical, but are located in the subtle energy fields.”

“Clairvoyants and other sensitives are able to see or feel these energy vortices and to describe them in great detail. Even though the chakras are not tangible in the material sense, they do have physical associations. **Chakras relate to the neurological plexuses along the spine and to the major endocrine glands.**”

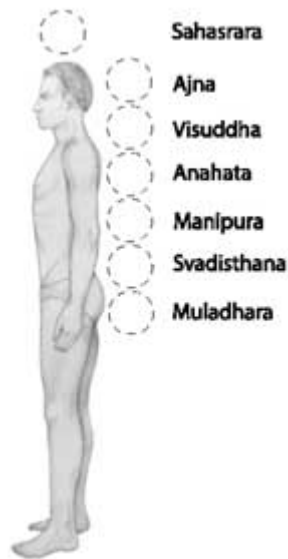


Figure 21.9. Chakras on the body

“Many holistic methods of healing utilize chakra balancing techniques.. There are meditations, visualizations, sounds, and breath exercises designed to balance the chakras. Some approaches are more involved than others. In the *Sign Language of the Soul* procedures, chakra balancing is only one of four treatments types, therefore, not everything is corrected through the chakras. Looking at the double star picture at the top of the page is useful in chakra balancing.”

21.2.2.2.8. THE PATTERN OF 64

21.2.2.2.8.1. DNA

“In 1953, James Watson and Francis Crick developed the three-dimensional model of the genetic code (for which they received the Nobel Prize in 1962). They found that genetic material is a biochemical code that created a double helix formation. This double helix is like a spiral staircase. The horizontal steps of the ladder carry the unique genetic material. The rungs on the helix ladder spell out the DNA code.”

“Four different nucleotide bases (A, T, G, or C) are found on the rungs of this ladder. Since the nucleotides code for 20 amino acids, a sequence of at least three bases is required. A double sequence would only provide 4x4, or 16, possibilities, which is not enough. A triple sequence provides 4x4x4, or 64, possibilities, which is more than enough. Therefore, there are 64 unique codes in DNA.”

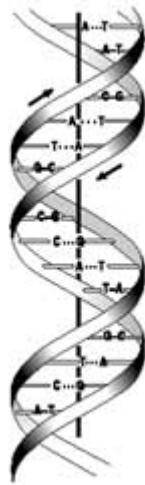


Figure 21.10. The Double Helix

21.2.2.2.8.2. I Ching

“The *I Ching*, the Chinese book of philosophy, describes the movements of the two basic members of polarity, yang and yin, as they develop and interact with each other in the formation of the world, consciousness, and human experience.”

“It is a binary system just like a computer as it is possible to reduce any image on a computer to its basic yin/yang or 0/1 units. The *I Ching* is a philosophical computer, a psychological abacus. It starts with pure duality, a solid or dashed line, yang or yin. Then it adds another line of either polarity to show how the two basic forces can change into each other.”

“There are four basic states of yin and yang as they move and interact with each other. The I Ching studies 6 permutations of yang and yin, which results in 2⁶ or 64 different arrangements of yang and yin.”

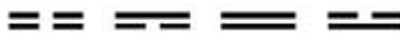


Figure 21.11. The Four Basic States of Yin and Yang

21.2.2.2.8.3. Kabbalah

“Although the Kabbalah is clear that God cannot be named, the four-letter Name ascribed to Him/Her is YHVH. These four letters have great significance in describing the attributes of the Tree of Life. It is interesting that **these four letters directly correlate with the four nucleotides of DNA and the four states of yang and yin.**”



Figure 21.12. The Vav Mudra

“These three different systems, two philosophical and one biochemical, exactly mirror each other. Furthermore, **there are four hand signs that equate to these four basic building blocks of biology/consciousness.** The mudras enable us to activate this universal pattern within the nervous system of the body.”

21.2.3. DEFINITION OF ASANA (POSTURES)

Taken from www.sivasakti.com/glossary/asana.html

"Posture. At the origins this term meant the place where the yogi is seated, but at this moment it's most widely accepted significance is that of 'pose.' The practice of these physical poses is a fundamental stage in many branches of the yoga system and is considered to be absolutely necessary for the approach of the superior levels. The Yoga Sutras, a classical yoga manual, affirms that the posture must be firm and comfortable. The yogi must be relaxed while executing asanas, keeping their spine, neck and head in a straight line. The modern Hatha Yoga manuals describe at least 200 such yogic postures. Hatha yoga Pradipika affirms that the regular practice of asana induces a state of stability, good health and gives brilliance to the physical body. Asanas have complex physiological, energetic, psychic, mental and spiritual effects. Some asanas are used for meditation. They induce very elevated states of consciousness. A bodily pose or posture."

21.2.3.1. INTRODUCTION TO THE PRACTICE OF ASANAS

Taken from Horia Cristescu (?date 2002) www.sivasakti.com/articles/intro-asanas.html (quoted in full)

"Most modern yoga classes and books have lost the secret key of Hatha Yoga. The true purpose of the ancient practices of the yoga system is to bring a superior balance and awaken the subtle energies of the body. It is not so much a physical practice but a spiritual practice based on Shakti, the fundamental vibrating energy of every human being."

"Hatha Yoga is an age-old discipline of Yoga. Hatha comes from 'ha' - solar (+) and 'tha' - lunar (-), the harmonious union of the two opposite aspects in the human body. The practice of yoga postures (Asanas) aims to open and purify the energy centers (Chakras) and energy channels (Nadis)."

"Our goal is to introduce in the Occident a... paranormal approach to the practice of asanas. At the present moment, the literature about asanas is rich, however, it presents a major flaw - it focuses exclusively on the exterior, exoteric, aspects, leaving the hidden, esoteric aspects unknown. But how is this possible? Let's see ... first of all, the Tantric masters who really know the secrets of Hatha Yoga chose not to reveal to the large masses their esoteric knowledge on asanas, preferring to transmit this information 'from mouth to ear,' never committing it in writing. Even the most famous

texts on Hatha Yoga : Hatha Yoga Pradipika, Gheranda Samhita and Shiva Samhita are at best very elliptic, never offering a plain explanation for everyone to understand."

"The second reason for this regrettable situation is the lack of deep mystical experience of the most yoga instructors and book authors from our days. As a result, there are a number of wide spread misconceptions about Hatha Yoga. Asanas are not mere physical exercises and they are not meant simply for health and relaxation. We submit to your attention the concept of asanas as paranormal training exercises."

21.2.3.2. "THE SECRET OF ASANAS Horia Cristescu

"The subtle body has seven principal energy centers and many secondary ones. When a yogi performs an asana, the specific configuration taken by the force centers (Chakras) creates a connection to the corresponding subtle energies from the Universe through the process of Resonance."

"'Resonance' comes from the Latin 'resonare,' which means to resound, to vibrate. The process of resonance comprises two systems, in our case the human being and the 'macrocosm' or universe, which have a common vibration frequency. The asana helps the yogi 'tune in' one of the infinite spheres of energy of the macrocosm. In order to achieve this process of resonance the yogi mentally evokes the desired effect while performing the asana."

"The practice of asanas is at least as much a mental practice as it is a physical practice. Let's take for example Bhujanghasana, the Cobra Pose. When a yogi performs this pose all he has to think is 'pure love' and concentrate on his heart chakra. This is the secret key of Bhujanghasana, and if it is used properly it will induce resonance between the yogi's heart chakra (anahala [heart] chakra) and the infinite macrocosmic sphere of love (maha anahata chakra), transferring virtually unlimited quantities of the love-energy to his heart."

"There is a perfect correspondence between one's own chakras, located within the microcosm of the human subtle body, and the exterior, infinite chakras of the macrocosm. Everything that exists in the macrocosm exists in us as well and something that does not exist inside of us does not exist in the macrocosm - this is the law of correspondence. However, while in the macrocosm all the subtle forces are perfectly energized with infinite power, in the microcosm they are often dormant, existing only in a state of potentiality. For example, one person may, in theory, have the possibility to experience pure infinite love, the same person may not actually experience this love because of a lack of resonance with the same types of energies from the macrocosm."

"The law of correspondence associates every psychic energy with a specific form, color, sacred word and musical note. For instance, Muladhara [root, base] Chakra, the force center of vitality is associated with the square, the yellow-brown color and the 'LAM' sacred word."

"This is the first time the correlation between asanas and force centers is revealed. This step is unprecedented in the Occident and opens the door for a deeper and more spiritual approach to asanas. In fact we can say that there is no 'real' Hatha Yoga outside the practice of chakra meditation and chakra awareness."

"A common man looking at a yogi practicing asana may imagine that what he sees is all there is to it. In fact, the secret of asanas is not the posture itself, but the mental concentration associated with the execution. That is why many have seen yogis performing Hatha Yoga and considered that they too would be able to do the same by mimicking their pose. Nothing can be further from the genuine practice of asanas."

21.2.3.3. "HATHA YOGA IS APPROCHABLE BY EVERYONE, EVEN BY CONVINCED MATERIALISTS Horia Cristescu

"New Hatha Yoga students are not required to have unquestioned faith, all they are required to have is openness of heart and mind and the will to give a fair chance to its system of exercises. Many new students were convinced materialists and they came to the yoga class only for health problems. However, the practice of yoga resulted in a more acute understanding of one's own, native religion and this understanding resulted in an opening of the heart towards it. By gradually purifying the structure, starting with the physical and finishing with the mental, the Hatha Yoga exercises bring a new world of capabilities and feelings for the open minded student."

21.2.3.4. "KUNDALINI YOGA AND ASANAS Horia Cristescu

"Kundalini is the name of the most fundamental energy-force in the human being. The awakening of this fundamental energy, Kundalini is experienced by a large number of yogis and 'ordinary' people all over the world. This 'force,' although poorly known in the Western sciences, is the main vehicle of men towards the revelation of the Supreme Self and the attainment of ultimate spiritual freedom. In most 'ordinary' people the fundamental energy Kundalini is dormant. It's location (in the dormant state) is the sacral plexus (Muladhara [root, base] Chakra), but when it is awakened, it raises from center to center, up the spinal chord (Susumna Nadi) until it reaches the crown center (Sahasara), accompanied by extraordinary emotions and states of consciousness. Kundalini pierces the seven force centers (Chakras) and generates the state of spiritual illumination ... but the experience of Kundalini is not without perils. The spontaneous or accidental awakening of Kundalini can cause a great deal of pain and even psychic problems. These sufferings are caused by the energy overcharges in the subtle body. The 'impurities' of the subtle body are 'burned' by Kundalini and this often is a painful process."

"Of course, if the awakening of Kundalini comes after attaining a solid training in Hatha Yoga, if the chakras and nadis have been purified with asanas and pranayama (breath control exercises) then Kundalini is no longer a cause for painful experiences - but a source of extraordinary bliss and sublime feelings. Kundalini is the fastest path towards ultimate spiritual freedom and Hatha Yoga is the best way to prepare for its awakening, because both asanas and Kundalini work on the same subtle force centers (chakras) and subtle channels (nadis)."

21.2.3.5. "OPENING THE HEART AND FINDING THE SOUL THROUGH ASANAS Horia Cristescu

"The correct practice of Hatha Yoga produces a gradual awakening of the seven force centers. With the activation of the first [root, base] center (muladhara), we gain a state of excellent vitality. With the activation of swadhistana chakra, we ensure the capacity for harmonious social interactions and

a healthy sexual appetite. By activating manipura [diaphragm, solar plexus] chakra, we amplify our will power. By opening anahata chakra (the heart chakra), we gain the capacity to love infinitely - a divine state of pure love, without having a particular object to be directed upon. Vishuddha [throat] chakra induces a state of great purity and deep spiritual intuition. Ajna [pineal] chakra gives us perfect control over our subtle body and the paranormal power of clairvoyance. Finally, sahasrara is responsible for the state of union of the human being with the Absolute Transcendence, the most elevated state of consciousness."

"Somewhere on this way, by balancing the feminine and masculine aspects of our personality, by opening up so that we could resonate with the benefic energies of the macrocosm, Hatha Yoga facilitates a profound transformation of our inner being. Our consciousness is expanded to the infinite, the heart is filled with bliss - this is the actual experience of many people who walked this spiritual path."

21.2.3.6. "Practicing Hatha Yoga" Horia Cristescu

"By contrast with the normal approach in sports, asanas do not intend to increase the muscular mass, the force, speed or endurance - they don't aim for effort. In fact, asanas are the exact opposite of aerobics and other sports. The keyword here is 'suppleness.' The practice of asanas should not be accompanied by effort."

"The asanas are conceived in such a way that the muscles are not involved in their execution. Instead of compressing the muscles, an asana elongates them. The joints and the muscles are stretched and this does not require effort. In fact it is normal that after a couple of hours of Hatha Yoga a practicant should feel more energetic and vibrant than in the beginning of the session, as opposite to a sports practicant who usually feels tired and worn-out."

21.2.3.7. "Here is a list of simple rules that are of great help when practicing asanas:" Horia Cristescu

- ∞ choose a certain time of day and practice asanas at the same time every day
- ∞ the place for practice should be private and away from agitation; you need a quiet retreated place that will give you privacy for the duration of your exercises
- ∞ it is recommended that you practice on a blanket that can cushion you from the cold or hard floor
- ∞ before starting the sequence of asanas, you need to do the warm up exercises; do not avoid them because otherwise you may harm yourself while stretching in asanas
- ∞ while performing an asana do not let your mind wander around; instead, focus on the specific chakras that are associated to that particular pose. Remember that asana practice is a form of meditation. If you do not focus on the right chakras, the spiritual efficiency will drop under 5%.
- ∞ after the execution of each asana you want to take a minute to fully assimilate into your consciousness the specific effects; this consciousness-awareness phase can be executed in a comfortable position and is a key to success in Hatha Yoga
- ∞ do not force your way through asanas; the asana should be stable and comfortable

- ∞ before starting to practice any asana you should read the counter-indications and avoid any health hazards; many asanas have specific counter-indications and you should never ignore them
- ∞ it is much better to do 20 minutes of Hatha Yoga every day than a one-time two hours session every week; do not overdo it in the beginning because you do not want to last only a couple of weeks, you want to keep the practice up for many years
- ∞ by maintaining the same time and location you establish a benefic resonance that will help you a great deal in the long run; when the time for yoga comes you will feel 'magically' attracted to start practicing
- ∞ asanas executed in group are much more efficient than asanas performed alone; the more people executing the same asana at once, the better; responsible for this increased effect is the same 'law of resonance,' only in this case 1 plus 1 gives more than 2
- ∞ do not forget to perform the relaxation pose after each asana session"

21.3. TRADITIONAL MOVEMENT PRACTICES: QI GONG AND TAI CHI

Sancier (1996) introduces the use of Qigong in dealing with medical problems, mainly chronic problems. "There are many medical applications of QiGong. Some of the most promising for Western healthcare are for chronic problems such as hypertension, cardiovascular disease, aging, asthma, allergies, neuromuscular problems, and cancer." (Sancier, p. 45)

"An estimated 60 million people in China practice QiGong daily, primarily to maintain health and achieve long life. The word QiGong is a combination of two ideas. Qi is the vital energy of the body, and gong is the skill of working with the qi. Medical QiGong for health and healing consists of primarily of meditation, physical movements, and breathing exercises. Qigong practitioners develop an awareness of qi sensations in their bodies and use their mind, or intention, to guide the qi. The benefits of QiGong are said to extend beyond health and healing to enhance spiritual life and even special abilities such as psychic powers. Qigong is also used in martial arts to develop physical and mental powers for self-defense and healing." (Sancier, p. 40)

21.4. EDU-KINESTHETICS: LEARNING THROUGH MOVEMENT

Educational Kinesiology and Brain Gym® activities use a great deal of movement and specific postures. It's basic philosophy is expressed in their motto "Movement is the doorway to learning." (Dennison, 1994. Hannaford et al, 1986. Hannaford, 1995)

"The word *Edu-Kinesthetics* means to *draw out learning through natural movement experiences*. All Educational Kinesiology processes are based on the premise that learning is only meaningful if it is integrated into the functioning self. Learning is integrated only if it is accessible and relevant to the individual both now and in the future. Edu-Kinesthetics is the study and application of specific movements which activate the brain and total bodymind for optimal storage and retrieval of information. It is also a process for re-educating the whole bodymind system for greater ease and efficiency of function.

"The best Edu-K facilitator is one who has fully experienced their own ability to change, learn and access greater potential through Edu-K. The Edu-Kinesthetics facilitator guides the learner toward

a greater sense of themselves through new experiences with mind and movement. The Edu-K facilitator learns to recognize each person's unique needs and unique ways of actualizing. The facilitator learns to honor, support and trust the wisdom of that individual's way of unfolding, rather than approaching them with any preconceived expectations.

"Why is movement such a good teacher? Movement, or lack of movement, is our first and most primary teacher. Before language, there is eye movement, bonding through touch and eye contact, open self-expression, heartfelt giving and receiving of energy without physical, mental or emotional constraints. Newborn infants coo and gurgle, exploring the world again and again with their eyes, ears, hands and feet. They trace the lines of their father's nose and lips like an artist, sculpting them forever into the recesses of their kinesthetic sense. They imitate the sounds around them unceasingly, playing with the full, satisfying feeling of breath, tongue and voice.

"Our earliest movements plant the seeds for enjoyment of a full sense of self later when we move our eyes for reading, turn our heads for listening or engage our whole bodies for any physical activity. By the same token, when we block movement and thereby "survive," we learn incorrectly that some movements are not safe. To that extent, we block that feeling of life energy inside ourselves--the very thing that allows us to experience the joy of lifelong growth and learning."

21.5. BROWN'S PEAK PERFORMANCE POSTURES

Chiropractic neurologist, CW Brown (1995) in his 14 min. video Peak Performance Postures: Reaching Advanced Health Through Neurological Movement, presents 14 body postures combining simple movements, positioning and "declarations." These 14 postures have been designed to tune your system to reach advanced health. The areas of application are: gratitude, acceptance, energy, freedom, flexibility, wealth, courage, strength, balance, vitality, excitement, wellness, forgiveness and love. He says it is neurologically impossible to experience depression in the Love posture. In his write-up of the video he says: "I [Brown] have developed a series of postures which stimulate specific nerve pathways and open energy pathways in the body... By paring these postures and simple movements with specific words, it is possible for you to change old emotional and neurological habit patterns. ...If you repeat these postures daily, the new skills will become entrained into your nervous system. Your response to difficult situations will gradually, automatically, include what you have practiced... [I]nstead of becoming stuck when you are given a difficult problem, your nervous system will be triggered to remember the peak performance posture... Changing these patterns will alter your mastery of life...all postures are accompanied by a declaration. The words are important. We are making DECLARATIONS. These are not affirmations. A declaration is something that BECOMES a FACT because you are saying or 'declaring' it so. With these declarations you are developing master of a particular skill and giving direction to your life."

21.6. CLYNES' SENTICS SYSTEM: THE BIOLOGICAL BASIS OF MUSIC AND EMOTIONS

21.6.1. INTRODUCTION

One of the most important theoretical and applied areas (which has yet to reach mainstream psychology) is Manfred Clynes' discovery/invention of "Sentic". Clynes is one of those geniuses who excel at everything. He is a concert pianist turned neurophysiologist, inventor, engineer and self-taught pioneer computer programmer. Born in Vienna, reared in Budapest, in 1938 he moved to Australia where he entered the University of Melbourne at the age of 16 and graduated with honors in music and engineering. He won a graduate fellowship to study piano at Juilliard where he received his master's degree in music, and later the University of Melbourne awarded him a doctor of science degree on the merit of his contributions to physiology.

Given that the human nervous system has these "wired in" organizing principles or forms, how are they expressed so that we understand each other's emotional communication? Being a concert pianist he knew that the only physical action available was mainly through the hands and fingers. The same was true of string players. How is it that, given performances that are equally good in technique, one will be superior in communicating the emotional content of the music? Somehow the "inner pulse" of the composer's intention must be processed by the nervous system of the musician and, with piano and string players, translated in hand/finger movements that are qualitatively different.

The problem was reduced to trying to measure the movements of the hand/finger when they were required to "play" in their mind certain musical passages. He developed his famous button box. The task involved placing the index finger on the button and moving it in vertical and horizontal directions to attempt to express certain musical passages. He combined this technique with his Computer of Averaged Transients program to discover if there were common patterns emerging. He used himself as his first subject. He would imagine himself playing a piece and, using only his index finger on the button, move it about as he mentally went through the piece. The computer recorded these movements and, with the CAT program, came out with a reading for that piece. Then he took another piece by the same composer (Mozart) and did the same thing. By doing this with several different pieces and comparing the resultant curves for each, Clynes discovered that Mozart had an "inner pulse form". Repeating this procedure with another composer (Beethoven) he discovered that he also had an "inner pulse form" different from Mozart. He had other musicians do the same thing for him to ensure that he wasn't somehow producing these amazing results by fluke. What he found was that each different performer's sets of curves agreed on Mozart compositions and each performer's curves agreed on Beethoven compositions. Further, the Mozart and Beethoven curves (Inner Pulse Forms) were different and distinct. He tested other composers and found that each had his own inner pulse which was distinct from other composers and could be measured precisely using his technology.

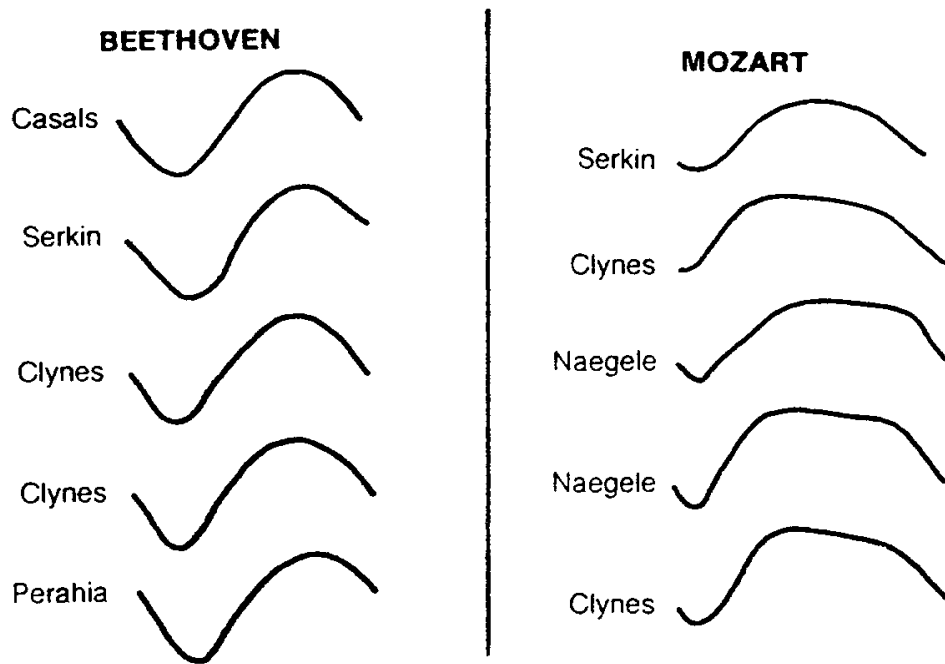


Figure 21.1.

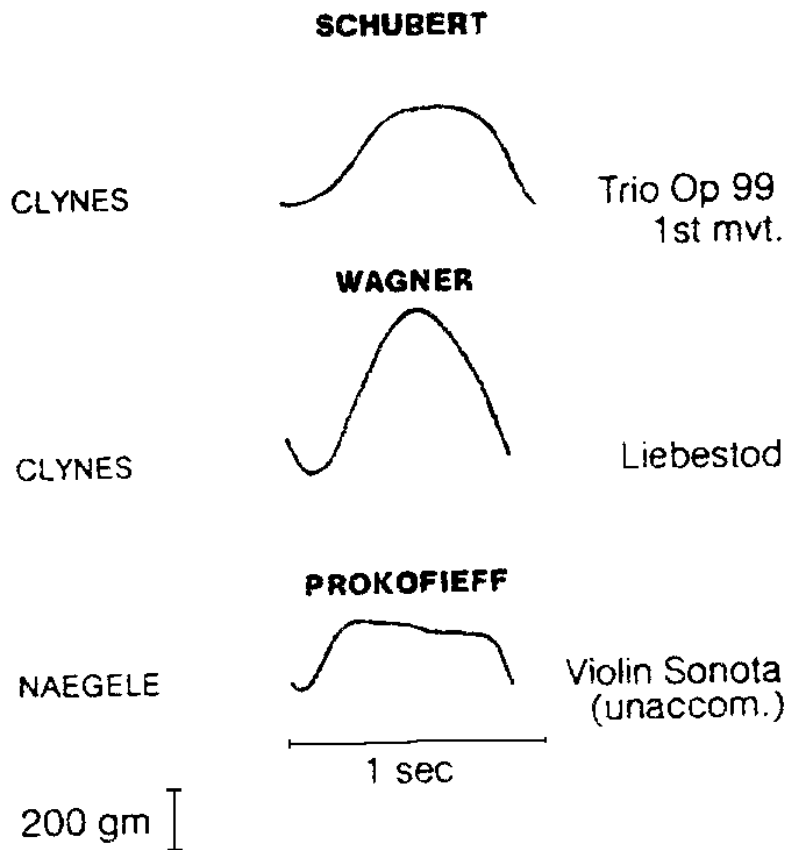


Figure 21.2.

The next move was to relate this to qualitative differences among performers. In a nut shell, the great performance, as opposed to just the technically competent one, is the one which captures the "inner pulse" of the composer. The great performer listens inwardly with utmost precision to the inner form of every musical sound and then produces that form precisely; precise concept and precise execution of the concept. They must capture the correspondence between the contour and shape of the melody and the appropriate volume shaping of the individual notes. The way the contour of the melody shapes the tones is by the slope of the "pitch-time curve" which includes both time and changes of pitch. This curve influences the amplitude shape of a particular tone to deviate from a basic shape as follows: "If the time slope of the pitch-time curve is upward, the shape is skewed forward. If the slope is downward, it is skewed backward. In both cases it is in proportion to the slope." The shape of the present tone is governed by the nature (pitch and time) of the tone to follow. The shape of the present tone clues the listener to the tone to follow. This relationship is a significant element of musicality. It helps give "a feeling of continuity and continuity of feeling."

The final step was to try and measure emotions directly without the intermediate music. The method is sheer simple genius. Subjects sit in an armless, straight-backed chair with their index finger on the button placed at a comfortable height on a table. The button is hooked to his CAT system. Then, in response to randomly spaced, soft-spoken commands from a tape recording, they are to "fantasize" each emotion and express it through the vertical and horizontal movement of their finger. The emotions used were Love, Hate, Anger, Grief, Joy, Sex and Reverence in addition to No Emotion.

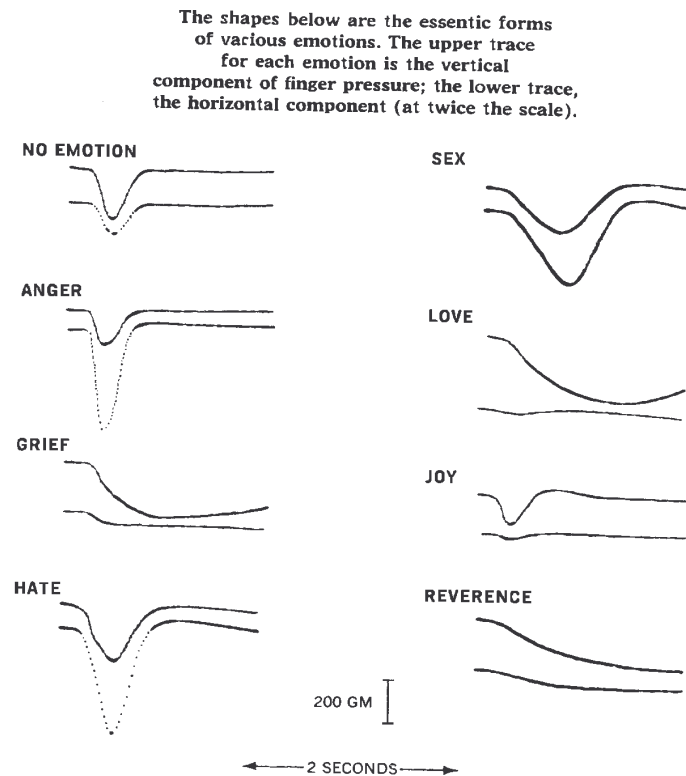


Figure 21.3.

What Clynnes found was that each emotion had its own "inner pulse" as indicated by the distinct pairs of curves, one for the horizontal movement and one for the vertical. These curves were the same for different populations, ages, sexes, and cultures. He concluded that there is a common brain program for each specific emotion that determines the character of the expression of that emotion (the movement and time course of the movement). This is true regardless of the particular body movement that expresses the emotion. This specific dynamic form of action which underlies each emotion is universal, unlearned and genetically programmed.

He found that subjects improve with practice; that is, the more a subject practices a clearly separate fantasy emotion, the more his individual expression approaches the common form for that emotion. The subjects receive no feedback about the shapes they are producing by button pressing and yet their tracings become more accurate and precise as the trials continue. The implication is that the subject is finding within himself those precise emotional expression programs that were there all along. You can learn to be more precise and in tune with the universal, biologically given forms of expression with practice. By training your brain/body you can learn to communicate emotional meaning much more precisely. When two people have different forms (curves) they report differences in the emotions experienced, even though they may use the same label (e.g., joy). Think of the implications for training musicians and actors to communicate emotional states better to their audiences.

These pre-programmed neurobiologic codes for an emotion are so precise and have been so precisely measured that Clynnes has found differential equations to express them and has programmed them into a computer to simulate human forms of emotional expression. Clynnes has taken these various curves and translated them back into auditory form as tones. University students and aborigines from Australia, on hearing these for the first time, identified them with unusual accuracy. Joy was the most accurately assessed emotional sound with more than 80% identifying the "Joy tone" correctly. Nearly 70% identified the sounds of anger and grief. Fifty per cent identified sex and 40-50% hate. Reverence and love were highly confused by the subjects. Males and females did equally well.

21.6.2. THE THERAPY OF DOING BASIC SENTIC CYCLES

One of the interesting spin-offs of Sentic research is the discovery that doing the Sentic Cycle of expressing emotions by finger pressing has a calming, meditative effect. The technique has been used by psychotherapists with a variety of patients as well as uses in "affective education" in schools. Clynnes discovered the cumulative, cathartic effect because at first he couldn't convince anyone to go through the cycles. Initially, he would sit in his laboratory for hours at a time and go through one sentic cycle after another. At the end of the day, when you think he would be bored to tears or nervous or upset at performing such a "silly act" he instead found himself surprisingly refreshed. His sense of well-being lasted from 3 to 24 hours. After the initial period of calmness he noticed a marked increase in psychological energy, physical activity, creativity and spontaneity. He also found that he needed less sleep and that the sleep he did get was much more restful than usual. Eventually, others reported similar experiences. The quality of the expressive act is important for the effect and not the sheer quantity of energy (e.g., beating a pillow to "work off anger or frustration").

The cycle takes 20 to 50 minutes and the benefits of going through a sentic cycle are entirely independent of the recording of the responses with the pressure transducer computer hookup. To get the full experience of a sentic cycle, the only apparatus you need is:

- a tape recorder and a properly programmed tape,
- a straight-backed armless chair,
- a table or surface at the proper height to mount the button on and,
- the right kind of surface to press your finger against.

Surfaces that are too uneven, too sticky, too yielding or too hard can interfere with concentration and reduce the effect. You can use a small, hollow plastic knob that feels "neutral" to the touch that can be firmly attached with a blob of putty to any convenient table top of the right height. The most important factor of all this is the random spacing of the signals for expressing an emotion. If you try to initiate each expressive act on your own, rather than responding to an unpredictably timed signal, the effect will disappear entirely.

The procedure is basically very simple. You select one of the seven emotions (anger, love, sex, hate, grief, joy, reverence. There is a possibility of an 8th "essentic form", that of blissfulness) and, using a tape with the random unpredictable signals (clicks) express the selected emotion with your finger press approximately 50 times and then move on to the next emotion. If you have the tape developed by Clynes for his initial research, the emotions are given on the tape followed by the random clicks. For instance, if the tape says "anger" you fantasize that emotion each time you hear the click and express anger as precisely as possible by pressing your finger on the button. (see: PART THREE: ADDITIONAL APPROACHES, OTHER PRACTITIONERS' USES OF THE RADIANT ENERGIES BALANCE (REB)SM PROTOCOL, AND RESOURCES FOR "THE ART OF DELIVERY"© for the complete illustrated instructions. You do need to have the equipment; the special tape and the finger press).

Because this activity doesn't sound like what a grown sane person would do with out a reason, I provide you with the list of the benefits of doing sentic cycles summarized by Tom Linker (from Sentic Newsletter, v. 2, #1, March 1980, p. 3):

1. Sentic can refine your awareness of your emotions and help you to recognize and deal with your feelings.
2. It can make you more flexible, get you out of an emotional rut by giving you a safe way to express and 'get out' emotions that your daily life seems to leave unexercised. I would call it an exercise for the emotions' and compare it to a physical fitness program for the body.
3. Sentic can increase your compassion, awareness of others' feelings.
4. Sentic can give you more of a sense that you can choose to express an emotion (as opposed to having it 'well up' and overtake you).
5. Sentic is as satisfying as music, is a metamusic that one needs no musical training to enjoy.
6. It will make you feel better, more cheerful, might even make you feel more at one with the universe.
7. It's simply a fascinating activity for its own sake.

ADVANCED SENTIC CYCLES

Clynes expanded his original concept of using movement and posture to create psychological effects. Here, rather than just using finger movement, he uses the upper body (arms and head) in specific movements and postures. Only positive emotions are used in the advanced sequence: No Emotion, Love, Reverence, Bliss, Compassion and Give Blessing.

21.6.3. GESTURES OF THE ADVANCED SENTIC CYCLE

NO EMOTION

"This state differs subtly from the No Emotion of the Standard Sentic Cycle. In the Standard Sentic Cycle, for No Emotion you carry out a simple non-expressive finger pressure action -- that is you do not express emotion with the finger action. You could be experiencing emotion, however. In the Advanced Sentic Cycle 1 however No Emotion means a total emptying of the mind, an experience of nothingness."

"In the sitting position the two arms rest on the thighs with the palms inclined to each other at 45°."

"The thumb thus points forward with a small inclination to the axis of the body and slightly upward. Response to the taps/clicks consists of a slightest impulse to both thumbs, towards the little finger, parallel with the palm - a minuscule flip of the thumb only, lasting perhaps three tenths of a second, ending with the thumb exactly as it was at the beginning of the flip (extent of the flip movement perhaps a quarter of an inch.)"

LOVE

"The gesture used for love really consists of two gestures, one for inspiration and one for expiration. These are done alternately, one for each tap/click."

"The inspiratory gesture has both arms moving roundedly out in an embracing shape, with palms facing your body. At the end of the gesture the fingers overlap by about one inch, and hands are about one inch behind each other."

"The expiatory gesture begins from the end of the inspiratory one and is a folding of the two arms on to the upper part of the chest at the level of the onset of the neck - so that the finger tips are about one inch from the top of your shoulder. The left arm is crossed over the right arm, the fingers pointing up and outward at about 45°. The second finger of each hand touches the clavicle bone. The following inspiration gesture is begun from this position."

"The dynamic form of each component gesture, of course, follows the dynamic form of love. The breathing pattern is smooth and goes together with the inspiration and expiration gestures."

REVERENCE

"The gesture begins from the gesture of No Emotion with both arms resting on the thighs, palms upwards. The angle of the palms is a little more open than for No Emotion - being almost horizontal (angle about 20°)."

"The gesture of reverence is in three parts, corresponding to three taps/clicks. (The middle part may be omitted by beginners.)"

"The first part is a somewhat rounded gesture with both arms reaching as high as possible with arms inclined slightly forward at about 10° from vertical palms facing each other, but slightly turned in the direction of thumbs receding from each other. This is the inspiration phase. During this phase a deep breath is taken. The last 4 or 5 seconds of the gesture are spent at the top if its reach.

[Fingers point upward. To note how important each minor aspect is to the genuineness of the form of the expression (gestalt) try doing the Reverence expression with fingers curled. You will see at once that, even with the arms otherwise doing the right movement, the feeling of reverence is impossible.]"

"In the next phase, the arms remain in the same high position and an additional inspiration is taken (even though the previous deep breath was held.)"

"The third phase is a slow return to the initial position together with a slow expiration. The Temporal shapes of all movements of course are done according to the dynamic form of reverence. At the end, the arms rest on the thighs with palms up, as at the beginning."

BLISS

"The quality of this experience is related to joy but is less active, contains greater relatedness, more wisdom and contemplation. It shares with joy an ecstatic quality."

"The Gesture for Bliss begins with the arms somewhat bent at the elbow, palms downward. The arms then move in the form of an ellipse for each arm, the wrist executing the ellipse in a vertical plane inclined about 15° outwards from the forward direction. Actually, the ellipse is more like an egg shape - the movement starting at the pointed end of the egg. The rounded end of the egg points forward and about 40° upward, the arms begin the movement perhaps three times faster than they end the gesture, slowing down as they reach the top of their movement, floating back at the end of each gesture, rather like in the joy expression of the Standard Cycle. Complete the movement only about a second before the tap/click that begins the next expression."

"The pattern is a little like a skier who moves the ski poles in the cyclic and rhythmic way (although in the opposite sense of rotation) and the feeling tone also has some similarity. There is a complete sense of effortlessness - the skiing analogy is for skiing down slopes!"

"Please note that it is crucial to the quality to be experienced to keep a 15° angle outward in the elliptical movement, not directly forward."

COMPASSION

"The expressive gesture of Compassion is done with the right hand alone (for right handed people).
[The Compassion gesture can be also done using the left hand alone with good results. It should not be alternated between the two hands, nor be done with both hands together however.]"

"The gesture begins with the right arm moderately extended and slightly sloping upward, and palm downward. The initial part of the gesture is a downward arc so that the arm extends down on the right side to somewhat below knee level, in the sitting position. In the course of this downward arc the palm is turned slightly inward. The gesture comes to rest at the bottom of its excursion, for about 1 second. This phase of the gesture is experienced as "touching the 'misery'." It is accompanied by expiration."

"The arm then goes back to its original position in an arc that completes the gesture. During the first part of the gesture you experience contact with "misery" - during the second part you recover to experience love. Breathing in the second part is inspiration."

"The left arm rests on the left thigh with PALM UP - acting as a vessel to receive and replenish energy that flows out through the right hand."

"Compounded of grief and love, the gesture, like breathing, is experienced as a single entity. The momentary rest at the bottom of the gesture is experience of essential contact with Otherness."

"In a pure expression of grief the arm would have to remain at its low point, but in Compassion it recovers to obtain renewed strength from the Source."

"A right handed person leading another will lead best with his/her LEFT hand holding the right hand of the other - thus giving the other courage and confidence (Using the opposite hands is much less effective, as you may wish to try yourself.)"

GIVE BLESSING

"In this state the individual becomes a vessel for Blessing to flow to another. It is best to think of a specific individual toward whom the Blessing is directed. Within a cycle Blessing may be given to different individuals in turn, but think of one individual for a single gesture."

"The gesture of Give Blessing is done with the right hand alone. It starts from a position similar to the Compassion gesture, but with the arm inclined upward a little more. It moves down in an arc as for Compassion but less far (only to a horizontal level), and there is no turning of the palm (or only very little) so that the palm remains facing downwards. The gesture stops at the bottom for only an instant (about 1/2 sec.) and returns to its initial position."

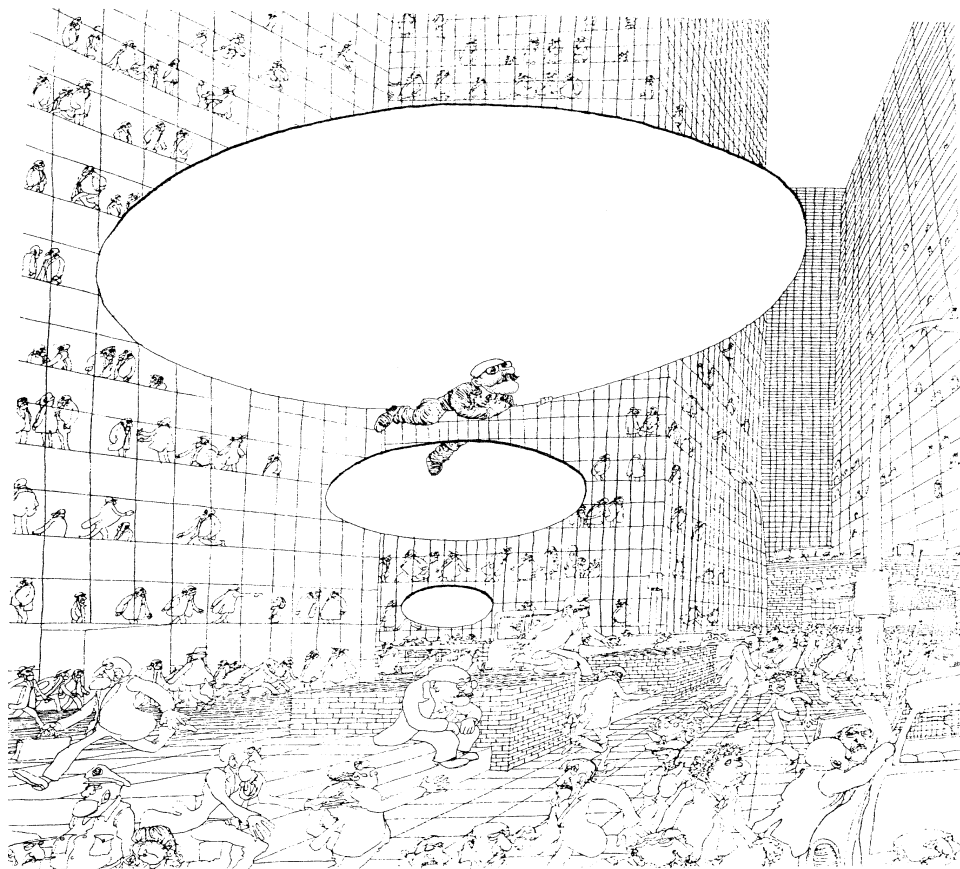
"The experience while doing this gesture, especially as it stops toward the bottom of its excursion, includes feeling an intense flow through the palm, a glowing flow directed toward the person in your imagination, bestowing Blessing on him or her. It is a gift - a gift which given leaves you richer."

"After the last expression of Give Blessing continue the following Reverence phase, with both arms as before.

At the end remain with arms raised as long as feels right
acting and living and knowing
the western wind caresses the hibiscus blossoms
freeing is seeing
seeing is freeing
solving is dissolving
morning and evening is
peace"

21.7. CARLOS CASTANEDA'S "TENSEGRITY" SYSTEM

Castaneda (1995) created the video series teaching Tensegrity. Vol. 1 includes twelve basic movements to gather energy and promote well-being. He learned this system from his teacher don Juan Matus, a Yaqui Indian sorcerer from Mexico. don Juan called the movements "magical passes" and explained that sorcerers who lived in Mexico in ancient times discovered them through their "dreaming" practices. Dreaming is a sorcerers' art that transforms ordinary dreams into bona fide means of enhancing perception and awareness. The current series of 3 videos are the translation of the "magical passes" to a mode more congruous with Western practice. They labeled their adapted system "Tensegrity."



Benefits of Meditation

22. THE RELATIONSHIPS BETWEEN THE ENERGY/INFORMATION CHANNELS AND CENTERS

Center # and English name	Hindu Name	Sufi Name	Location	Related Channel (meridian)	Function
1 Root, Base, Tailbone	Muladhara or mulathara	Qalabiya	In front of base of spine	ren/Central/Conceptual and ida nadia	Foundation, survival, Divine, abandonment, nurture, basic needs, feminine issues, reliability, the mother
2. Navel, Abdominal	Svadhistana or swadhishthara	Nafsiya	2" below navel	Kidney/Bladder pair	Creativity, generativity, sexuality, sensation, center of ego, passion
3. Diaphragm 3a. Hara 3b. Solar plexus	Manipura	Qalbiya	Just below navel At solar plexus, where ribs join	Spleen/Stomach pair	Body's energy center Power, frustration, anger, rage, the power of the heart
4. Heart 4a-b. Auxiliary	Anahata	Sirriya	Center of chest, just above nipples	Heart/Small Intestine and Pericardium/Triple Warmer pairs	Most emotions, also outrage, ecstasy; bliss, the life of the heart, often the center, spiritual expansion-the secret heart
5. Throat	Visshudha or vishuddha	Ruhiya	Base of throat	Lung/Large Intestine pair	Communication, especially of knowledge and wisdom, spirit, vibration
6. Pineal	Ajna	Khafiya	Center, just above eyebrows	Liver/Gallbladder pairs	Intuition, thought, insight, perception, "sight," wisdom, clarity
7. Crown	Sahasrara	Haqqiya	Crown of head	du/tu/Governing and pingala nadi	Spiritual connection, high states, masculine divine, the Father, illumination, unity, enlightenment transcendence, truth

Figure 22.1 The comparison of the energy/information centers and possible functional relations to the meridians as per Jovanovic-Iqnjatic and Rakovic (1999). Source Clinton, 2000, p. 15

ENERGY ANATOMY OF THE CHAKRAS

from Myss, C. (1996) (with correlates for the Energy Centers of BioKinesiology, Topping and Biokinesiology Institute)

CHAKRA SEVEN (Crown BioKinesiology Energy Center)

Organs: Muscular system; skeletal system; skin

Mental, Emotional Issues: Ability to trust life; values, ethics, and courage; humanitarianism; selflessness; ability to see larger pattern; faith and inspiration; spirituality and devotion.

Physical Dysfunctions: Paralysis; genetic disorders; bone cancer; multiple sclerosis; amyotrophic lateral sclerosis (ALS).

CHAKRA SIX (Pineal BioKinesiology Energy Center)

Organs: Brain; nervous system; eyes, ears, nose; pineal gland; pituitary gland.

Mental, Emotional Issues: Self-evaluation; truth; intellectual abilities; feelings of adequacy; openness to ideas of others; ability to learn from experiences; emotional intelligence.

Physical Dysfunctions: Brain tumor/hemorrhage/stroke; neurological disturbances; blindness/deafness; full spinal difficulties; learning disabilities; seizures.

CHAKRA FIVE (Throat BioKinesiology Energy Center)

Organs: Throat; thyroid; trachea; neck vertebrae; mouth; teeth and gums; esophagus; parathyroid; hypothalamus.

Mental, Emotional Issues: Choice and strength of will; personal expression; following one's dream; using personal power to create; addiction; judgment and criticism; faith and knowledge; capacity to make decisions.

Physical Dysfunctions: Raspy throat; chronic sore throats; mouth ulcers; gum difficulties; temporo-mandibular joint problems; scoliosis; laryngitis; swollen glands; thyroid problems.

CHAKRA FOUR (Heart BioKinesiology Energy Center)

Organs: Heart and circulatory system; lungs; shoulders and arms; ribs/breasts; diaphragm; thymus gland.

Mental, Emotional Issues: Love and hatred; resentment and bitterness; grief; self-centeredness; loneliness and commitment; forgiveness and compassion; hope and trust.

Physical Dysfunctions: Congestive heart failure; myocardial infarction (heart attack); mitral valve prolapse; cardiomegaly; asthma/allergy; lung cancer; bronchial pneumonia; upper back, shoulder; breast cancer.

CHAKRA THREE (Spleen, Solar, Diaphragm BioKinesiology Energy Centers)

Organs: Abdomen; stomach; upper intestines; liver, gall bladder, kidney, pancreas; adrenal glands; spleen; middle spine.

Mental, Emotional Issues: Trust; fear and intimidation; self-esteem, self-confidence, self-respect; care of others; responsibility for making decisions; sensitivity to criticism; personal honor.

Physical Dysfunctions: Arthritis; gastric or duodenal ulcers; pancreatitis/diabetes; indigestion, chronic or acute; anorexia or bulimia; liver dysfunction; hepatitis; adrenal dysfunction.

CHAKRA TWO (Genital and Abdominal BioKinesiology Energy Centers)

Organs: Sexual organs; large intestine; lower vertebrae; pelvis; appendix; bladder; hip area.

Mental, Emotional Issues: Blame and guilt; money and sex, power, and control; creativity; ethics and honor in relationships.

Physical Dysfunctions: Chronic lower back pain; sciatica; ob-gyn problems; pelvic/low back pain; sexual potency; urinary problems.

CHAKRA ONE (Tailbone BioKinesiology Energy Center)

Organs: Physical body support; base of spine; legs, bones, feet; rectum, immune system.

Mental, Emotional Issues: Safety and security; ability to provide for life's necessities; ability to stand up for oneself; feeling at home; emotional support.

Physical Dysfunctions: Chronic lower back pain; sciatica; varicose veins; rectal tumors/cancer; depression; immune disorders.

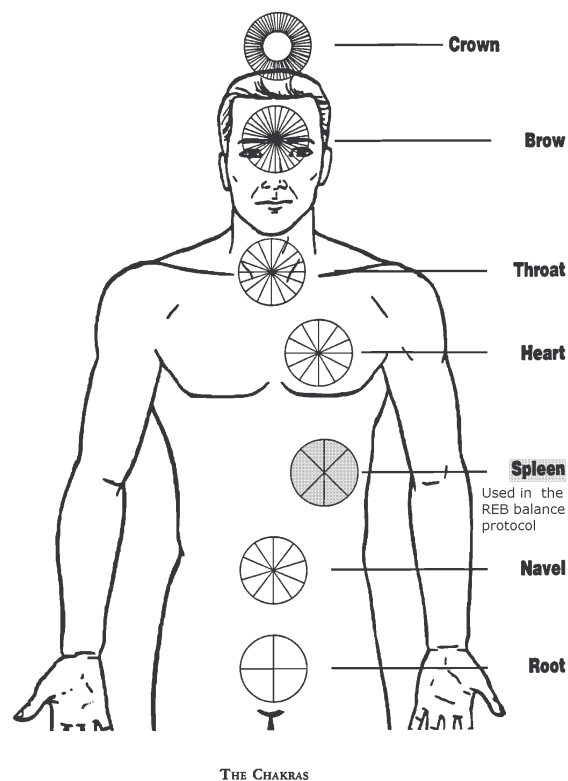


Figure 22.2

23. THE TRANSPERSONAL PERSPECTIVE AS A CONTEXT FOR THE ENERGY INFORMATION APPROACHES

23.1. TRANSPERSONAL PSYCHOLOGY: ITS PIVOTAL POSITION BETWEEN SCIENCE and RELIGION

In Ken Wilber's (2000) four Quadrant Integral Model of the "Kosmos" (see figure below reproduced from section 6. of this paper), transpersonal psychology and the energy-information approaches bridge between the Upper Left quadrant ("I"-Interior-Subjective-Individual-Intentional) and the Upper Right quadrant ("It"-Exterior-Objective-Individual-Behavioural) approaches to human functioning. The other two lower quadrants refer to collective approaches to human functioning (LL: "We"-Interior-Subjective-Collective-Cultural and LR: "Its"-Exterior-Objective-Collective-Social)

	Interior		Exterior
	I UL Interior-Subjective-Individual Intentional		IT UR Exterior-Objective-Individual Behavioural
			Individual
	WE LL Interior-Subjective-Collective Cultural (worldspace)		ITS LR Exterior-Objective-Collective Social (system)
			Communal or Collective
	Left Hand		Right Hand

The Four Quadrants of Knowledge about the "Kosmos" (the totality of reality)

In our present culture, the "scientific" viewpoint prevails where mainstream psychology is seen by others and also by itself as the latest word on human nature and potential. However, from the perspective of the "perennial philosophy/psychology" and the living Adepts and spiritual masters, modern psychology is seen to be myopic and reductionist -- unable or unwilling to move beyond the narrow spectrum of human potential that "fits" within the confines of the empiricist world-view of objectivist science (William Blake's "Newton's Sleep"). Transpersonal psychology is a branch of psychology that stands at the borderline where science meets religion/spirituality, where therapy/discussion meet spiritual practice/personal commitment. This puts it into an uncomfortable position, liable to criticism from both sides since it is neither conventionally objective science nor an all-embracing way of spiritual transformation.

"Abraham Maslow -- who is generally regarded as the modern founder of transpersonal psychology -- pointed out that there are now 'Four Forces' in the field of psychology: (1) behaviorism, or objective-empirical (and therefore often physicalistic) approaches; (2) psychoanalysis, or psychodynamic and psychosexual approaches; (3) humanistic, or existential and mental-intentional approaches; and (4) transpersonal, or spiritual and transcendental approaches... Each of these 'four psychologies' has something very important, very necessary, very significant -- and very limited -- to tell us, and thus each should be approached... with a mind both open-appreciative and critical-evaluative... Transpersonal psychology is theoretically interested in all ...levels of consciousness...It accepts the valid aspects of the first three... schools of psychology, and it then attempts to bridge or

unite them, theoretically, with the...higher stage-schools of development (e.g., yogis, saints, and sages)... Transpersonal psychology is not... a way of life or a complete psychospiritual discipline... Rather the aims of transpersonal psychology are more modest, but not, therefore, less important. [Wilber] would generally state them as follows:"

"... To render spirituality theoretically acceptable to the 'other' or 'lower' schools of psychology. By presenting mental... models that persuasively and comprehensively include the higher or spiritual stages of adaptation, transpersonal psychology forces schools such as psychoanalysis to reconsider their reductionistic dismissal of transcendental possibilities."

"... When it comes to 'psychotherapy', transpersonal psychologists act much like 'General Practitioners' (GPs) in medicine... 'spiritual GPs'... might treat lower level disorders themselves (using standard psychotherapeutic procedures for which they were trained), but when it comes to upper-level disorders ... they recommend competent Masters. Genuine transpersonal psychologists never attempt 'brain surgery' [high level procedures] themselves. Rather, they recommend that the client see a competent spiritual Adept."

"Transpersonal psychology, then, is not a total psychospiritual or completely transformative path...: it is not a way of ultimate liberation or radical transcendence. Nor, on the other hand, is it a reductionistic, positivistic, spirit-denying psychology. Rather, it is a theoretical approach that, standing precisely between the upper and the lower hemispheres of existence, is attempting to get each to talk to, not at, the other."

"That...is the genuine service that transpersonal psychologists are performing, quite apart from the individual work they are doing on their own chosen spiritual paths. The genuine transpersonalists... have no illusions about what they, as transpersonal psychologists are doing -- which is... to make room in the minds or the psyches of men and women for an intellectual acceptance of God--at which point, as always, the work of the genuine Adepts and Masters can more easily begin. Transpersonal psychologists are... apologists for the soul, Gnostic intermediaries whose function is made necessary by the fact that, incredibly enough, modern psychology has forgotten its own soul, its own psyche(!), which has always been held to be the intersection of the Temporal and the Eternal ...They sit silent at the crossroads and point, no more, no less." (Wilber, 1984b).

23.2. GENERAL CHARACTERISTICS OF TRANSPERSONAL PSYCHOLOGY

Transpersonal psychology has the following basic assumptions:

1. Each person possesses, potentially, the three basic modes of contacting reality and gaining knowledge (e.g., the "eyes" of flesh, reason and contemplation, (see the table "Three major domains..." in section 13.2.3. of this paper).
2. Each eye/mode gives a particular version of reality (empirical/sensory, mental/cognitive and transcendent/spiritual).
3. The higher eye/mode can not be reduced to or explained in terms solely of the lower.
4. Each eye/mode is valid and useful in its own field but commits an interpretative fallacy (category error) when it attempts, by itself, to fully grasp the other two.

Transpersonal psychology draws freely on the three eyes/modes but is grounded in the transcendent (the "final court of appeal for validity"). It is in a very favorable/demanding position of being able to use and integrate all major approaches -- a synthesis and integration of science, philosophy/psychology and religion. Experimentation, empirical research and logical reasoning are important adjuncts to transpersonal psychology but are not the core -- which is transcendent. It is a specific enterprise which, because it transcends sense and reason, is free to use both but can not be totally grasped or defined by either. The fact that transpersonal psychology is not strictly empirical or logical does not mean it is invalid, emotional, non-verifiable, anti-reason, non-cognitive or meaningless. It means it is struggling with the paradoxes inherent in its domain.

Transpersonal psychology requires training in all three of the approaches to reality to carry out its activity. It seeks to avoid "interpretative category errors" by using the approaches appropriately and recognizing the strengths and limits of each. For whatever type of knowledge is desired, the appropriate "eye" must be trained until it is adequate to "see" clearly its subject matter (science, art, philosophy, religion, etc.) If a person refuses to train a particular eye, this is the same as refusing to look and we are justified in disregarding this person's opinions and excluding him from serious discourse about the domain. The problem becomes complicated when the person has attained power, respect, fame or influence based on accomplishments in one domain and then seeks to make pronouncements about other domains. One should be weary of this since there is more than enough disagreement among practitioners within a domain or sub-domain without adding unhelpful "static."

The conflict between science and religion is a conflict between the pseudo-scientific aspects of religion and the pseudo-religious aspects of science. To the extent that each remains within its domain, any conflict that occurs can be shown to reduce to interpretative category errors. When mystics talk empirical facts, they must be prepared to face scientists; when they talk logic and principles they must face philosophers or psychologists; only when they practice contemplation are they truly at home.

Transpersonal psychology should be able to embrace, appropriately, all three domains. That makes it different from traditional religion, philosophy/psychology and science -- it can potentially integrate all of them. Recently, some scientists are trying to become theologians or even prophets/mystics. When a physicist says "Modern physics shows that all things are fundamentally the One" he is making a statement about ultimates. The mystic can then say "That is simply an idea presented by the eye of mind; describe your method for opening the eye of contemplation. Specify what one must do in order to directly experience this Oneness. If you cannot do that, you have committed an [interpretative] category error; you are talking about the ultimate realm using only the eye of reason". (see section 13.2.3. of this paper)

Transpersonal psychology is in an extraordinarily favorable and uncomfortable position: it can preserve for itself the unique position of possessing a balanced, yet complete approach to reality. The most important thing it can do is point out and avoid the interpretative category errors. Do not present transcendent insights/revelations as if they were empirical scientific facts or logical truths because they cannot be scientifically or logically verified. Thus, when someone asks "Where is your empirical/logical proof for transcendence?" we need not panic. We explain the training/education methods of our knowledge and invite them to check it out personally. Should they accept and complete the appropriate training, then they are capable of becoming part of the community of those whose eye is adequate to the transcendent realities. Prior to that time, the person is inadequate to

form a definitive opinion about transpersonal realities. Unfortunately, in the transcendent domain as in all others there is no guarantee in the training.

<p>1. <u>Nature</u>: Physical non-living matter/energy; Basic biological life, animalistic level of emotions, senses, bioenergy, physical body; Sensory-motor thinking; Archaic society; Blood sacrifice religious practice</p> <p>2. <u>Magic</u>: Simple images and symbols; Thinking is mainly stimulus-response conditioning; Hunting/gathering ; and early farming society; Superstition, totems, sex rituals/rites religious practice</p>	<p>Pre-Personal; Pre-Rational; Sub-Conscious</p>
<p>3. <u>Mythic</u>: Low Ego Concepts and rules govern thought; Verbal membership, authoritarian-conforming society; "Cosmic Parent", ritualistic, in/out groups (saved vs damned) religious practice</p>	
<p>4. <u>Rational</u>: Middle Ego Logical thinking; Self- awareness, self-reflexive; "Skin-encapsulated ego"; Rational/scientific religious practice</p>	
<p>5. <u>Intuitive, Psychic</u>: High Ego Full functioning; Self-actualizing; Body-mind integration; Vision-logic; Integrative (systems) logic; Existential and shamanistic religious practice</p>	<p>Trans-Personal; Trans-Rational Super-Conscious</p>
<p>6. <u>Soul, Subtle</u>: Access to archetypal knowledge, higher order insights and visions, ecstatic intuition with extraordinary clarity of awareness, an open ground consciousness that reaches far beyond ordinary ego, mind and body; One God/ess (mono-theistic) saintly religious practice</p>	
<p>7. <u>Spirit, Causal</u>: Unity of Soul and Ultimate; Perfect Transcendence of subject-object duality that reaches beyond the experience and imagination of ordinary individuals; The realm of Formless Radiance, of radical insight into all manifestation; Blissful release into infinity; The breaking down of all boundaries; The absolutely panoramic or perfectly mirror like wisdom and awareness; Sagely religious practice</p>	
<p>8. <u>ULTIMATE</u>: Passing through the causal level, consciousness reawakens to its absolute abode of perfect transcendence into and as ultimate consciousness-as-such; The infinite limit of the spectrum of being; The nature, source and suchness of each level of the spectrum; All pervading one without second. At this point and not before, all levels are seen to be perfect and equal manifestations of the ultimate Mystery; There are no levels, no dimensions, no higher, no lower, no sacred, no profane, no boundaries; UNITY CONSCIOUSNESS</p>	<p>Path AND Goal; Ground of All Being</p>

Figure 23.1 Basic Social/Religious/Psychological Characteristics of Levels of the Perennial Philosophy/Psychology (the Great Hierarchy of being and consciousness)

23.3. INTRODUCING THE SPIRITUAL INTO CIVIL SOCIETY WITHOUT GETTING LYNCHED: THE SOCIAL CONTEXT

In A Sociable God, (see figure 23.2 below) Wilber (1983b/1984) points out that something that calls itself a religion may or may not facilitate the transcendent development of its followers who typically exist on the "low ego" level where concepts and rules govern thought with verbal membership in a authoritarian-conforming society who believe in a "Cosmic Parent" using ritualistic, in/out groups (saved vs. damned) religious practices.

Most religious organizations, for good or ill, do provide their members with social support and meaning, which he calls Legitimacy, but not the evolution of soul, which he calls Authenticity. I feel that we need social institutions which do both and these institutions will develop, practice and promulgate what I call "technologies of transcendence and transformation." However, given our modern North American life style in the 2000s, these technologies, in their basic form, can not require too much effort or discipline (ours is an instant individualistic self-absorbed culture). Thus the techniques must be very simple and effective, at least in the beginning stages. They MUST start with where the person is in life and life style and go from there (probably Low ego or at best Middle Ego using logical thinking with self-awareness, self-reflexive; a "Skin-encapsulated ego" most comfortable with a rational/scientific approach to religious practice). You'll have very little impact if you require giant steps of commitment and effort.

This is why I'm very enthusiastic about Energy-Information Psychology methods (EFP = Emotional Freedom Processes) and the approach of the Institute of HeartMath. They are very simple in their basic application, although have almost limitless potential when practiced skillfully and persistently. I have been on a path all my adult life, looking for and promoting a "People's Radical Release Therapy."

"People's" since only brief training is needed and you don't need an advanced degree to use it in its basic form.

"Radical Release " since the methods are very fast requiring only minutes to create profound results and you can use them anywhere, not just in a special setting/office/clinic, and further, they don't require any special equipment beyond your hands.

"Therapy" since you eliminate "psycho-physical-spiritual-garbage" and begin to follow your heart wisdom. What more could be required for the ultimate in a life skill?!!)

I believe that these "technologies of transcendence and transformation" can begin to restore us and our culture to acknowledging the validity of all quadrants and all levels of existence (the Great Hierarchy of being and consciousness for the UL internal, individual quadrant) and awake us from William Blake's "Newton's Sleep" (UR). Ken Wilber's thinking provides the cognitive map. Energy-Information Psychology (EFPs = Emotional freedom Processes) and HeartMath provide the vehicle to traverse the map's territory, bridging the UL and UR quadrants while acknowledging their social-cultural context (LL and LR).

Horizontal: Legitimacy: The degree of fulfillment of psychological/social needs of people on a given developmental level.
 Vertical: Authenticity: The degree of transformation, movement to higher (or lower) levels of functioning

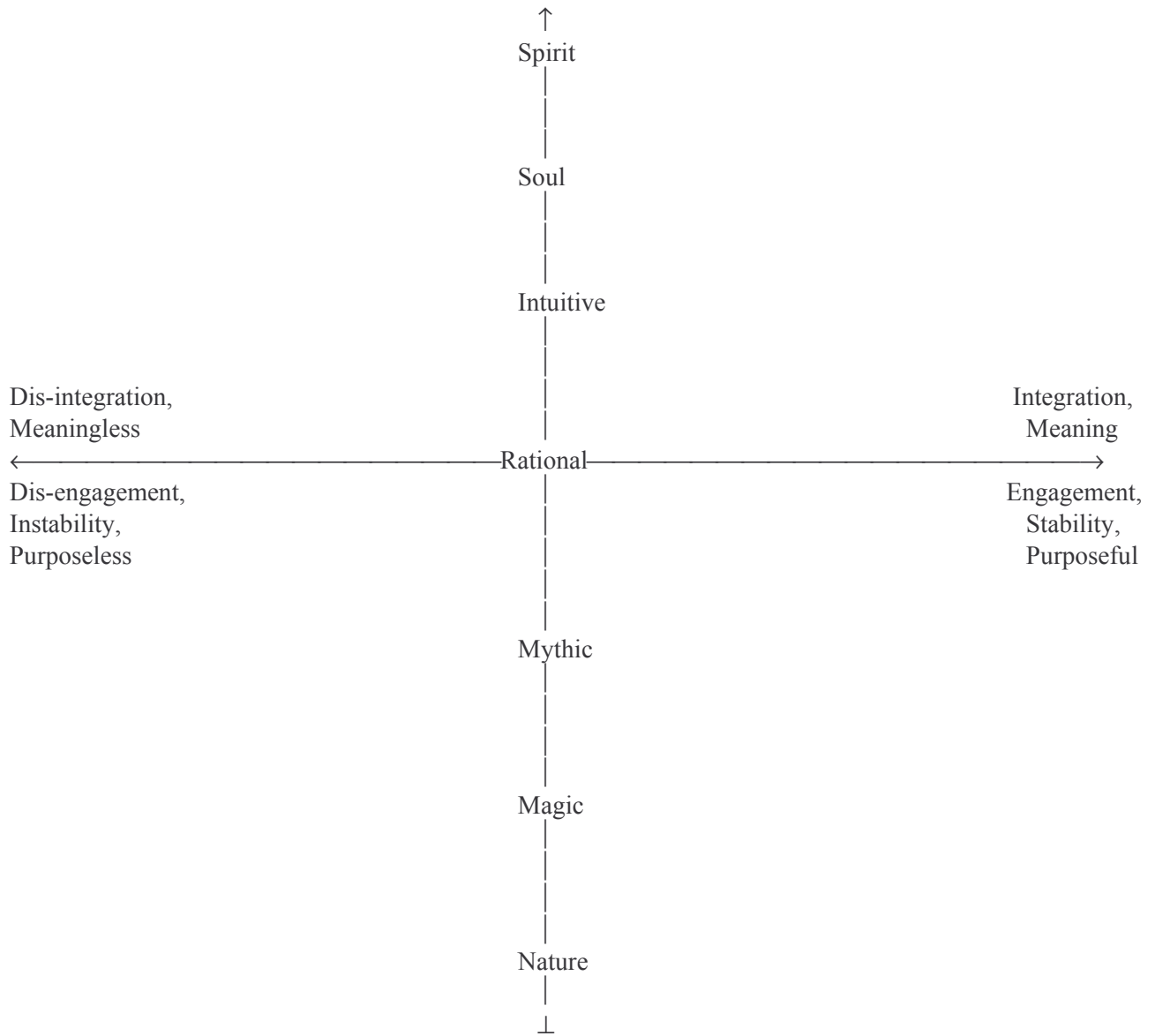


Figure 23.2 Two Basic Dimensions of Belief Systems (Wilber, 1983b)

23.4. KEN WILBER'S LATEST MODEL: AQAL (ALL QUADRANT, ALL LEVEL) IN DIAGRAMS

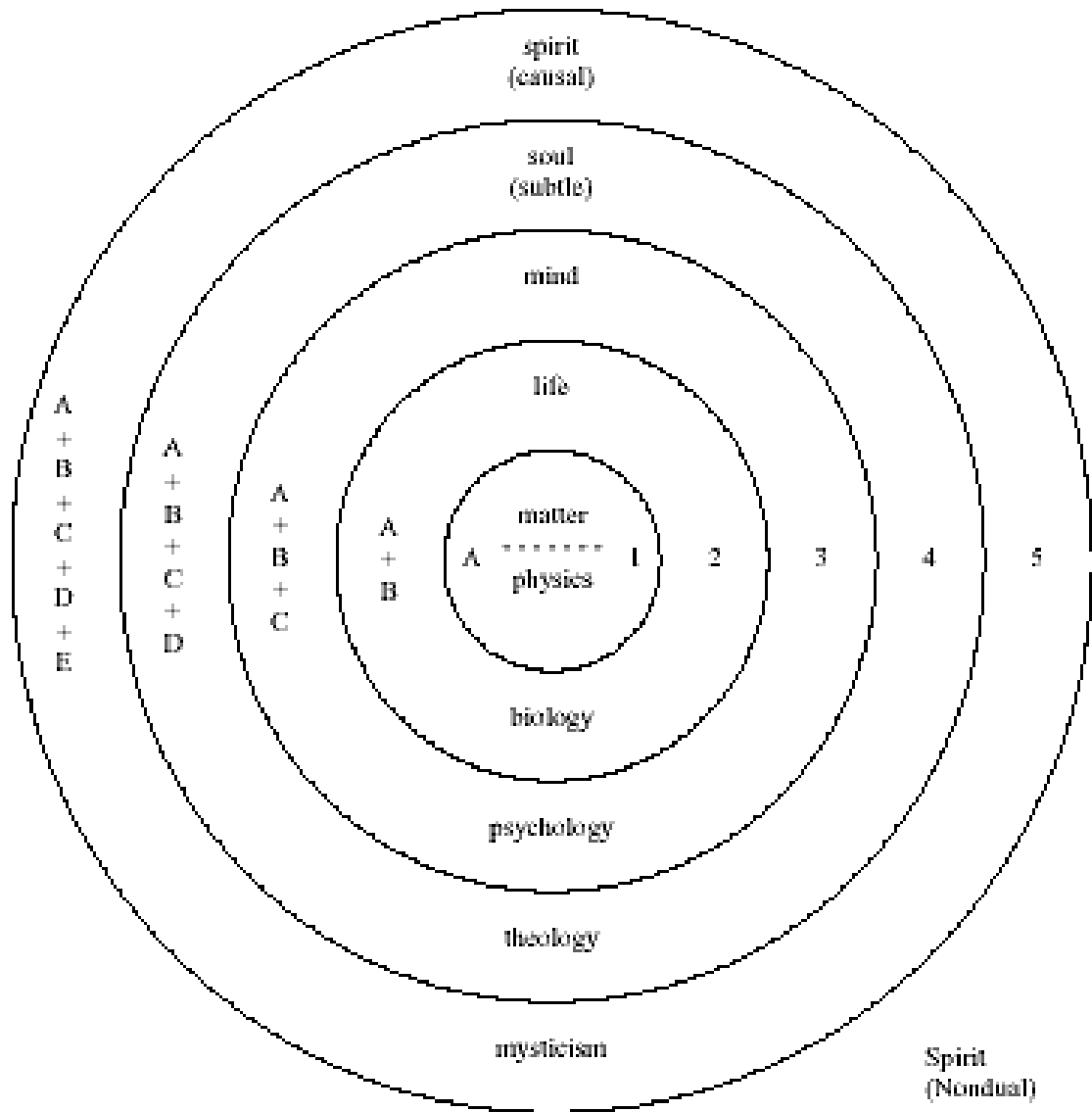


Figure 1. The Great Nest of Being. Spirit is both the highest level (causal) and the nondual Ground of all levels.

Figure 23.3. The Great Nest of Being from Collected Works, Vol. 8.

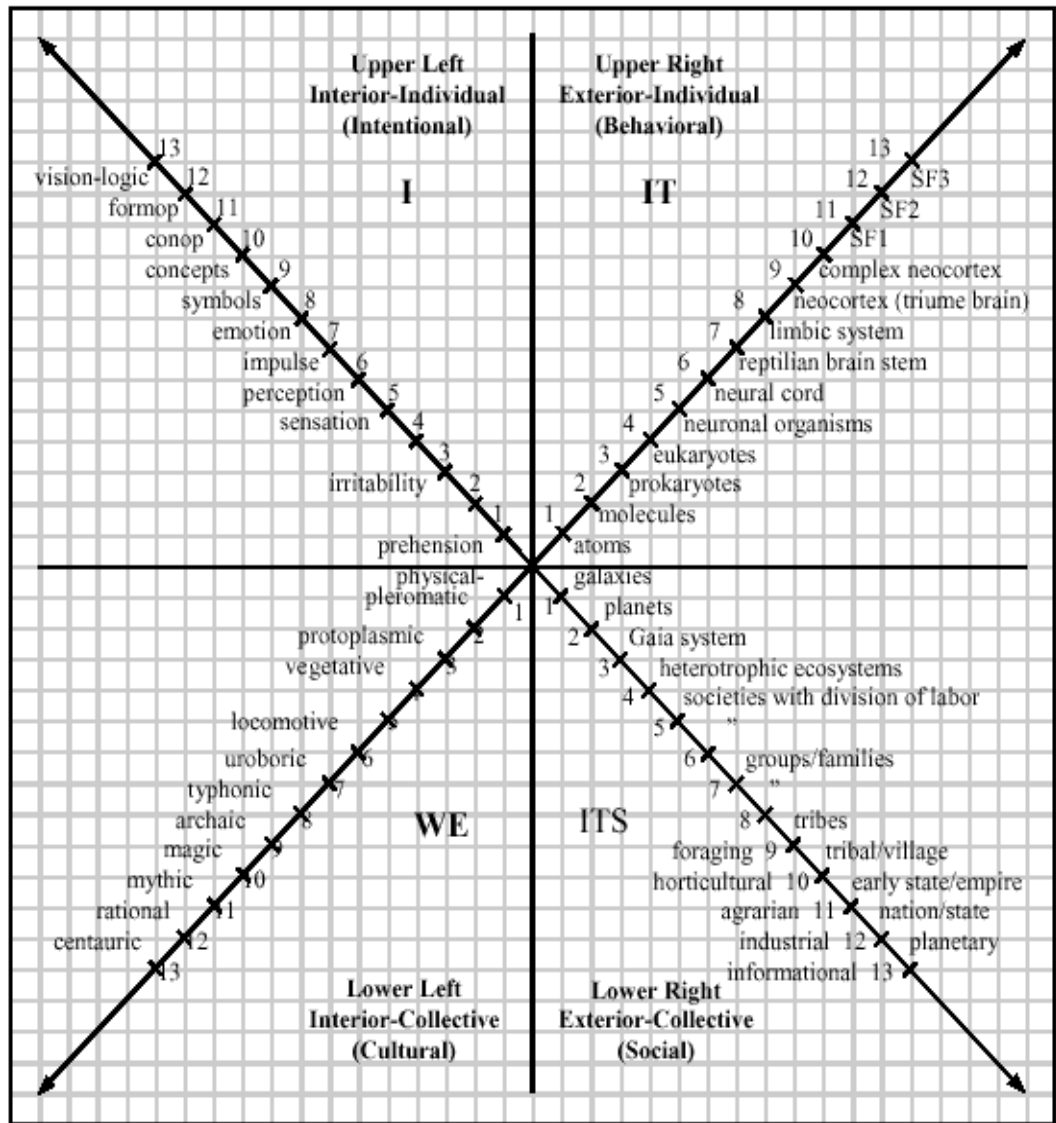


Figure 2. The Four Quadrants

Figure 23.4. The All Quadrant All Level version from Collected Works, Vol. 8.

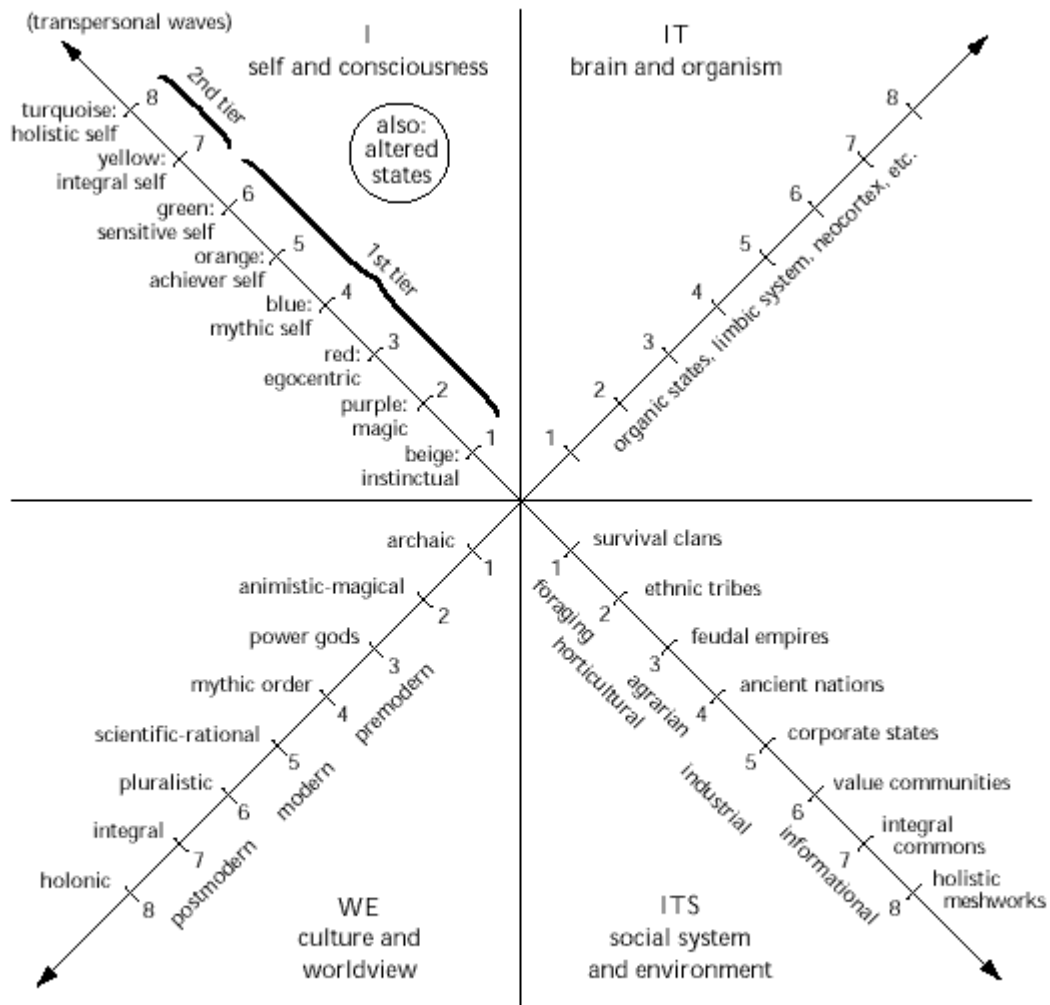


Figure 1. *Some Examples of the Four Quadrants in Humans*

Figure 23.5. From *Collected Works of Ken Wilber Vol. 7*

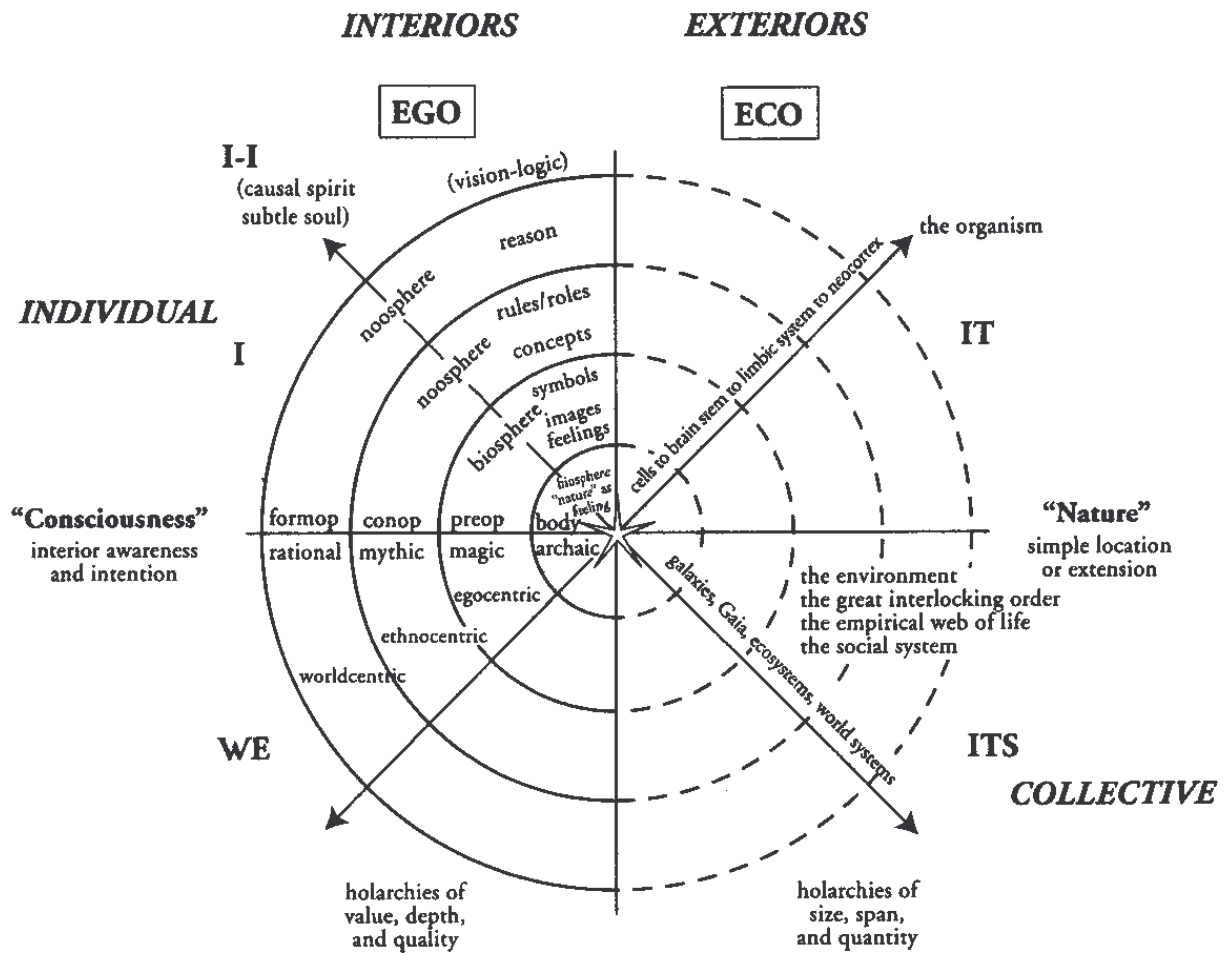


Figure 23.6. The Great Nest/4 Quadrants before the modern collapse into “flat land” right half only “scientism”

23.5. BRIEF DESCRIPTION OF SOME OF THE POTENTIAL STATES OF CONSCIOUSNESS

{the outline structure of this section is provided below for clarification of its organization as well as a proposed “picture” of this structure}

23.5.1. BODY DEPENDENT STATES (from the least to most spiritually valuable experiences)

- 23.5.1.1. Coma
- 23.5.1.2. Mania
- 23.5.1.3. Stupor
- 23.5.1.4. Fragmentation
- 23.5.1.5. Apathy
- 23.5.1.6. Hysteria
- 23.5.1.7. Lethargy
- 23.5.1.8. Anger
- 23.5.1.9. Boredom
- 23.5.1.10. Antagonism
- 23.5.1.11. Ordinary waking consciousness
- 23.5.1.12. The Preconscious
- 23.5.1.13. Sleeping
- 23.5.1.14. Daydreaming
- 23.5.1.15. Stored Memory
- 23.5.1.16. Internal Scanning
- 23.5.1.17. The Hypnogogic State
- 23.5.1.18. The Hypnopomic State
- 23.5.1.19. The Hyperalert State
- 23.5.1.20. Reverie
- 23.5.1.21. The Psychodynamic Conscious
 - 23.5.1.21.1. Dreaming
- 23.5.1.22 Regressive States
- 23.5.1.23. The Ontogenetic Conscious (Perinatal Phenomena)
 - 23.5.1. 23.1. Cosmic Unity.
 - 23.5.1. 23.2. Cosmic Engulfment.
 - 23.5.1. 23.3. "No Exit" or Hell.
 - 23.5.1. 23.4. Death-Rebirth Struggle.
 - 23.5.1. 23.5. Death-Rebirth Experience
 - 23.5.1. 23.6. Embryonic and Fetal Experiences
- 23.5.1.24. The Phylogenetic Conscious (Evolutionary Conscious)
 - 23.5.1.24.1. Organ, Tissue and Cellular Consciousness
 - 23.5.1. 24.2. Animal Consciousness
 - 23.5.1. 24.3. Plant Consciousness
 - 23.5.1. 24.4. Oneness with Life and All Creation
 - 23.5.1. 24.5. Consciousness of Inorganic Matter
 - 23.5.1. 24.6. Planetary Consciousness.

23.5.2. THE PSYCHIC TRANSFER POINT

23.5.3. TWO METHODS TO INDUCE BODY INDEPENDENT STATES. Quieting vs Hyperactive Methods.

23.5.4. BODY INDEPENDENT STATES

23.5.4.1. Out of the Body Experiences, ESP & Mediumistic Phenomena

23.5.4.1.1. Out of the Body Experiences

23.5.4.1.1.1. Garden Variety Astral Journey

23.5.4.1.1.2. "Entities"

23.5.4.1.1.3. "Space Travel"

23.5.4.1.2. Extra Sensory Perception (ESP)

23.5.4.1.2.1. Cognitive

23.5.4.1.2.2. Physical - Psychokinesis (PK)

23.5.4.1.2.3. Mediumship

23.5.4.2. Trans-Individual Conscious

23.5.4.2.1. Ancestral Experiences

23.5.4.2.2. Past Incarnation Experiences

23.5.4.2.3. Collective and Racial Experiences

23.5.4.2.4. Archetypal Experiences

23.5.4.3. Visionary States

23.5.4.4. The Superconscious

23.5.4.5. The Void

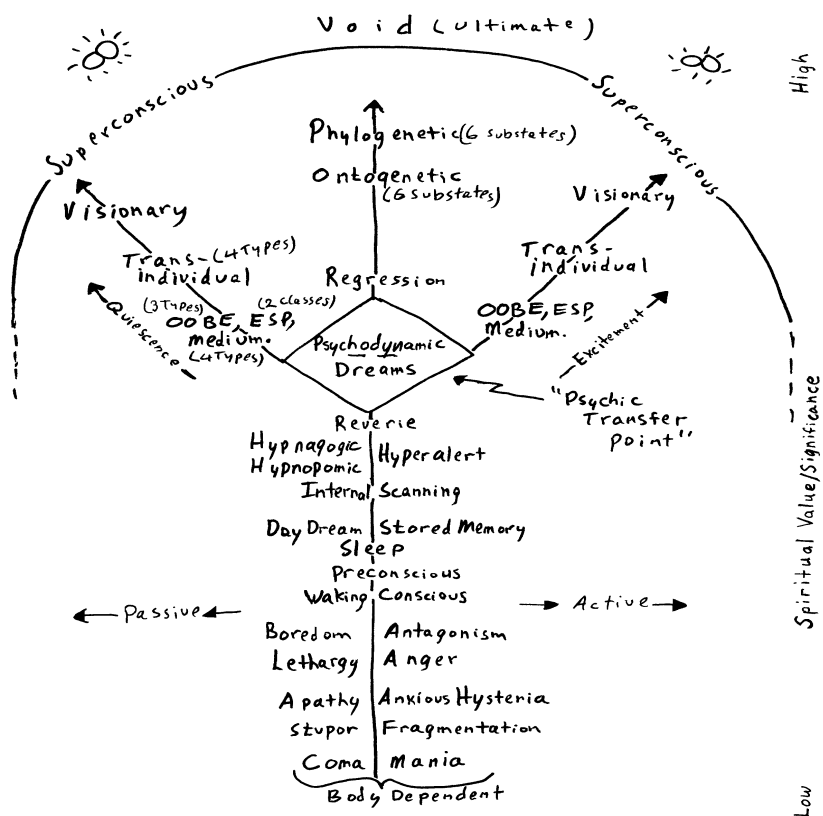


Figure 23.7. A Diagram of Some Potential States of Consciousness

23.5.1. BODY DEPENDENT STATES (from the least to most spiritually valuable experiences)

The different classes of experiences associated with the various states of consciousness along this continuum all depend on body-based cues. All these states are dependent on programs which are rooted in the brain/body system and they differ primarily in terms of whether the programs are acquired and personal (as they tend to be at superficial levels) or archetypal, perhaps genetic, and universal (at the more significant levels). In short, such programs necessitate a human body to mediate them.

- 23.5.1.1. Coma:** an inability to perceive incoming stimuli. There is little motor activity and no use of language. Coma may be induced by illness, toxic agents, epileptic seizures, trauma to the brain, or glandular dysfunction (Krippner).
- 23.5.1.2. Mania:** Violent abnormal conduct, impulsive behavior characterized by violent and uncontrollable motor activity.
- 23.5.1.3. Stupor:** a suspended or greatly reduced ability to perceive incoming stimuli. Motor activity may be possible but its efficiency is greatly reduced; language may be used but only in a limited and often non-meaningful way. Stupor may be induced by certain types of psychosis or certain drugs (e.g., opiates, large quantities of alcohol.) (Krippner)
- 23.5.1.4. Fragmentation:** lack of integration among important segments, aspects, or themes of the total personality. These states parallel conditions referred to as psychosis, severe psychoneurosis, dissociation, "multiple personality," amnesia, and fugue episodes (in which someone forgets his past and begins a new life pattern). These states, which may be either temporary or long lasting, can be induced by certain drugs, physical trauma to the brain, psychological stress, physiological predispositions (which interact with psychological stress in some types of schizophrenia), and experimental manipulation (e.g., sensory deprivation, hypnosis). (Krippner)
- 23.5.1.5. Apathy:** lack of feeling or interest in situations that usually provoke such reactions.
- 23.5.1.6. Hysteria:** intense feeling and overpowering emotion, subjectively evaluated as negative and destructive in nature. These states can be induced by rage, anger, jealousy, panic, fear, terror, horror, fear of being "bewitched" or "possessed," violent mob activity (e.g. "lynching parties, "running berserk"), psychoneurotic anxiety and certain drugs. (Krippner)
- 23.5.1.7. Lethargy:** dulled, sluggish mental activity. It can be induced by fatigue, sleep deprivation, malnutrition, dehydration, improper sugar balance, drugs that depress brain activity, or by despondent moods and feelings. (Krippner)
- 23.5.1.8. Anger:** destructive persistence, begins strong but weakens quickly; use threats, punishment and tries to dominate others; makes violent efforts to destroy antagonistic group members; fighting; destruction of opposing realities, brutal sense of humor.
- 23.5.1.9. Boredom:** idle; poor concentration; relatively inactive but capable of action; neglect of self and others; apt to be literal about humor; likes casual pointless conversation and interested only in ordinary affairs; capable of some small amount of constructive action.
- 23.5.1.10. Antagonism:** nagging, bluntly criticizing to demand compliance with own wishes; competitive, attempts to win over others to destroy their dominance over him; critical; talks in threats.
- 23.5.1.11. Ordinary waking consciousness:** "normal", everyday, waking state, characterized by logic, rationality, cause-and-effect thinking, goal directedness, and the feeling that one is "in

control" of one's mental activity. One engages in "reflective" thinking; in other words, the individual is aware of himself as an experiencing unit. (Krippner)

"Most of the time most of us function in this so-called normal state of consciousness - in reference to which all other states of consciousness save the preconscious are regarded as 'altered.' Although consciousness encompasses an enormous range of mental functioning, the properties of this state are sufficiently well known for everyday phenomenological evidence that no further remarks seems needed." (Ring, 1972)

- 23.5.1.12. The Preconscious:** This region, closely allied to normal waking consciousness, refers to contents which momentarily lie outside the field of awareness, but which could become conscious at any time. The experience of suddenly recalling a person's name which had been eluding one is a good example of a preconscious content passing into the region of ordinary awareness. (Ring, 1972)
- 23.5.1.13. Sleeping:** can be identified on the EEG by an absence of rapid eye movements and by a gradually emerging pattern of "slow" brain waves. A person awakened from sleep will usually give a brief verbal report which differs considerably from dream reports; this brief verbal report indicates that mental activity is present during the sleeping state as well as during the dreaming state. (Krippner)
- 23.5.1.14. Daydreaming:** rapidly occurring thoughts which bear little relation to the external environment. It may occur with the eyes open or closed; when the eyes are closed, visual images may appear and rapid eye movements may occur. Daydreaming may be induced by boredom, social isolation, sensory deprivation, nighttime dream deprivation, psychodynamic needs (e.g., wish fulfillment), or spontaneously occurring periods of reverie and fantasy. (Krippner)
- 23.5.1.15. Stored Memory:** involves past experience which is not immediately available to an individual's reflective awareness. Nevertheless, the memory traces (or "engrams") of past events always exist on some level of the individual's consciousness. They may be recalled by conscious effort, they may be evoked by electrical or chemical stimulation of the cortex, they may be produced through psychoanalytic free association, or they may emerge spontaneously. (Krippner)
- 23.5.1.16. Internal Scanning:** awareness of bodily feelings in the organs, tissues, muscles, etc. Consciousness is always present but exists on a non-reflective level unless there is a concerted effort on the part of an individual to become aware of these feelings or unless the bodily feelings are intensified by pain, hunger, etc. (Krippner)
- 23.5.1.17. The Hypnogogic State:** occurs between wakefulness and sleep at the onset of the sleep-dream cycle. It is often characterized by visual imagery and sometimes includes auditory imagery as well; both types of images differ from mental activity experienced during sleeping and dreaming states.
- 23.5.1.18. The Hypnopomic State:** occurs between sleep and wakefulness at the end of the sleep-dream cycle. At times it is characterized by visual and/or auditory imagery, differing qualitatively from forms of mental activity which occur during sleeping and dreaming states. (Krippner)
- 23.5.1.19. The Hyperalert State:** prolonged and increased vigilance while one is awake. It can be induced by drugs which stimulate the brain, by activities demanding intense concentration, or by measures necessary for survival during military operations (e.g. crow's nest watch, sentry duty). (Krippner)

23.5.1.20. Reverie: is frequently characterized by rapid eye movements on the EEG but occurs during trance. Typically, the state is experimentally induced by a hypnotist who suggests that the individual will have a dreamlike experience. (Krippner)

23.5.1.21. The Psychodynamic Conscious: The psychodynamic conscious, often called the Freudian unconscious) is critical because it represents a "psychic transfer point." It is here that awareness can either continue its drift into more significant levels of body-based memories and experiences or it can take a "horizontal" turn into realms of experience which are independent of the body. (Ring, 1976)

23.5.1.21.1. Dreaming can be identified on the electroencephalograph (EEG) by noting periods of rapid eye movements and the absence of "slow" brain waves. The dreaming state occurs periodically during the night as part of the sleep-dream cycle. (See "The Psychic Transfer Point" discussed later). (Krippner)

23.5.1.22. Regressive States: behavior that is clearly inappropriate in terms of the individual's physiological status and chronological age. These states may be temporary (e.g., a person who has undergone "age regression" as a result of experimental manipulation through hypnosis or drugs) or long lasting (e.g., an individual suffering from various types of senility). (Krippner)

23.5.1.23. The Ontogenetic Conscious (Perinatal Phenomena): (Ring 1972) The ontogenetic conscious deals with phenomena which cannot be handled within the Freudian framework. The types of experience which reflect the influence of this region have been dealt with, in part, by some psychoanalysts, notably Otto Rank. The connection between aspects of the intrauterine state and the birth process and later adult experiences in this region of the mind have led Grof to refer to the phenomena here as perinatal. The ontogenetic conscious is important because it sheds much light on experiences difficult to reconcile with traditional Western accounts of the mind.

Speaking of his conclusions, based on seventeen years of research, concerning the nature of transpersonal experiences, Grof writes:

"After years of careful observation and analysis of these experiences in LSD sessions of others, as well as my own,, there is little doubt in my mind that they represent phenomena sui generis that originate in the deep conscious, in realms that have been unrecognized and unacknowledged by classical psychoanalysis. They are not explainable in Freudian terms and cannot be reduced to any other category of psychodynamic elements." (Grof, 1973, pp. 31, 34)

The experiences which emanate from this region deal with problems related to physical pain, agony, dying and death, biological birth, aging, disease and decrepitude. As can be imagined, these experiences - which bring an individual to an emotionally overwhelming encounter with human finitude -can be utterly devastating to the person who undergoes them, but they can also be the occasion for a profound inner transformation.

One reason why these experiences are so overpowering is that they are based on the intensely affective conditions surrounding birth - memories or "psychic residues" of the intrauterine state and of the birth process. Techniques can enable an individual to re-experience these events, access to which is ordinarily thought to be beyond one's capacity. Because these experiences are so discontinuous with normal functioning and because the emotions associated with them are so

primitive and powerful, the individual in whom they are aroused is likely to be completely overwhelmed by them. The individual often spontaneously and intuitively associates these experiences with the birth process, without any external interpretation to that effect having been suggested. At some profound level, many subjects apparently "flash" on these events and regard them as absolutely authentic, and not just hypothetical or imaginable possibilities.

There are five types of perinatal experiences, each of which appears to be correlated to a different state or stage of the birth sequence. In addition, there are embryonic and fetal experiences. All of these pertain to the ontogenetic conscious and each of these types of experiences will be briefly described.

- 23.5.1.23.1. Cosmic Unity:** This experience seems to be associated with a "good womb" state, an intrauterine condition marked by the absence of noxious stimuli. Here, child and mother have a relationship of symbiotic unity. Experientially, this state is characterized as transcendence of the subject-object dichotomy, exceptionally strong positive affect (peace, tranquility, serenity, bliss), a special feeling of sacredness, transcendence of time and space, experience of pure being ('eternity now and infinity here'), and a richness of insights of cosmic relevance. This type of tension-free melted ecstasy can be referred to as "oceanic ecstasy".
- 23.5.1.23.2. Cosmic Engulfment:** This experience is coordinated either to a "bad womb" state or the onset of delivery. In either case, the stable womb condition is disturbed by alarming signals of a biochemical or muscular nature. Subjectively, the experience is that of an imminent threat of danger. Anxiety is high and non-specific. Paranoid ideation can occur. The individual may feel that he is being sucked into a whirlpool, swallowed up, or devoured by a terrifying monster.
- 23.5.1.23.3. "No Exit" or Hell:** This experience is related to the stage where the fetus is constricted by uterine contractions but where the cervix is still closed. Experientially, there is usually a striking darkness of the visual field. The colors are rather sinister and ominous. The individual feels completely trapped in a claustrophobic "no exit" situation and experiences incredible psychological or physical tortures. The situation is not only unbearable, but appears to be both hopeless and endless. There is no possibility of escape. In short, what is being experienced here is the condition of Eternal Hell.
- 23.5.1.23.4. Death-Rebirth Struggle:** Here, in terms of the birth sequence, the uterine contractions continue, but the cervix is open, leading to the gradual and difficult propulsion through the birth canal. Experientially, the pattern is complex. The most important characteristic is that of a titanic fight. Often there is an explosive release of immense energy and feelings of powerful currents of energy flowing through the body. The image of an exploding volcano sometimes represents this kind of experience. Excessive sexual excitement, frequently mixed with intense aggression, and visions of wild orgies also symbolize this aspect. This state represents the borderline between ecstasy and agony and, at the same time, somehow, the fusion of both. It is described in terms of "volcanic ecstasy" in contrast to the oceanic ecstasy of cosmic union.
- 23.5.1.23.5. Death-Rebirth Experience:** Finally, the baby is propelled through the birth canal and the enormous tension associated with birth is followed by sudden relief and relaxation. At the psychological level, suffering and agony terminate in total annihilation - the individual experiences an ego death. This experience seems to involve an

instantaneous destruction of all reference points for the individual. But at this point something truly awesome happens.

"After an individual has experienced the very depth of total annihilation and hit the cosmic bottom, he is struck by visions of blinding white or golden light and experiences freeing decompression and expansion of space. The Universe is perceived as indescribably beautiful and radiant; the general atmosphere is that of liberation, redemption, salvation, love and forgiveness. The subject feels cleansed and purged and talks about having disposed of an incredible amount of 'garbage', guilt, aggression and anxiety. He feels overwhelming love for other fellowmen, appreciation of warm human relations, friendship, and love. Irrational and exaggerated ambitions as well as cravings for money, status, prestige, and power appear in this state absurd and irrelevant. The appreciation of natural beauties is enormously enhanced, and an uncomplicated and simple way of life in close contact and harmony with nature seems to be the most desirable of all alternatives. Anything of natural origin is experienced with utmost zest by all the widely opened sensory pathways. Brotherly feelings for all fellowmen are accompanied by feelings of humility and a tendency to engage in service and charitable activities.

"The experience of rebirth is frequently followed by what is usually described as an experience of 'cosmic union' and seems to be closely related to the 'good womb' and 'good breast' experiences and happy childhood memories. The individual tuned into this experiential area usually discovers within himself genuinely positive values, such as a sense of justice, appreciation of beauty, feelings of love, self-respect and respect for others. These values, as well as the motivations to pursue them and act in accordance with them, seem to be on this level an intrinsic part of the human personality. They cannot be satisfactorily explained in terms of reaction formations to opposite tendencies or as sublimation of primitive instinctual drives. The individual experiences them as intrinsic parts of the universal order." (Grof 1972, p. 56-57)

23.5.1.23.6. Embryonic and Fetal Experiences: In special altered states of consciousness, individual sometimes experience events they believe must have taken place while they were in utero. They may, for example, experience an attempted abortion or their parents' sexual intercourse. It is difficult to provide independent confirmation for these events.

23.5.1.24. The Phylogenetic Conscious (Evolutionary Conscious): (Ring, 1974) The realm of consciousness takes us completely beyond human forms. In this region, we seem to encounter our own evolutionary development and may be able to trace it back to the beginning of life itself. We experience - not just know intellectually - ourselves as animal life and as plant life; we seem to recapitulate experientially the whole evolutionary sequence of life on this planet!

"In this type of phylogenetic or evolutionary experience the subject identifies with his animal ancestors on various levels of development; this is accompanied by a realistic feeling that the subject is exploring his own evolutionary pedigree. The identification is rather complex, complete and authentic; it involves the body

image, a variety of physical feelings and physiological sensations, specific emotions, and a new perception of the environment. Occasionally the subjects report insight into zoological or ethnological facts that by far exceed the level of their education in natural sciences. In addition, the experiences involved appear to be qualitatively different from human experiences and frequently even seem to transcend the scope of human fantasy and imagination. The subject can have, for example, an illuminating insight into what it feels like when a snake is hungry, when a turtle is sexually excited, or when a salmon breathes through its gills. Identification is most frequent with other mammals, with birds, reptiles, amphibians and various species of fish. Occasionally, the subjects report identification with much less differentiated forms of life, such as coelenterates or even unicellular organisms. Evolutionary experiences are sometimes accompanied by changes in neurological reflexes and certain abnormal motor phenomena that appear to be related to the activation of archaic neuronal pathways." (Grof 1972, p. 62-3)

It also appears that subjects may find themselves locked into a specific mode of sub-human consciousness. It is as though one gets off the Evolutionary Express at a certain station before reaching the end of the line. In fact, several stations can be distinguished.

- 23.5.1.24.1. Organ, Tissue and Cellular Consciousness:** In this type of experience the subject reports a feeling of authentically turning into the consciousness of a certain part of his body - at either the organ, tissue or cellular level.
- 23.5.1.24.2. Animal Consciousness:** Here one is identified with a certain species and one functions with the consciousness of the animal with which one has identified. There is a good instance of this in the first of Castaneda's Don Juan books (The Teachings of Don Juan, 1969~ when Castaneda is learning to see like a crow.
- 23.5.1.24.3. Plant Consciousness:** This is much less common than animal identification. Here the individual may have an utterly convincing experience of such processes as the germination of seeds, pollination, photosynthesis, etc.
- 23.5.1.24.4. Oneness with Life and All Creation:** Here the individual identifies with the totality of life on the planet. He experiences the complexity of phylogenetic development of all life forms.
- 23.5.1.24.5. Consciousness of Inorganic Matter:** The individual can here identify with a great range of inorganic material - from an atom to a statue. Identification with stable and durable forms (e.g., statues) is often accompanied by a feeling of sacredness. Within the framework of this experience, consciousness itself appears to the individual as a basic property of the universe, with ordinary consciousness merely one of its manifestations.
- 23.5.1.24.6. Planetary Consciousness:** Attained by few, this level of consciousness encompasses all the phenomena of this planet, both organic and inorganic.

23.5.2. THE PSYCHIC TRANSFER POINT (Ring, 1976)

It is necessary to return to the psychodynamic conscious. It is a psychic transfer point because no passage to the more profound body dependent states of consciousness or to body independent states is possible without a "stop-over" here. Metaphorically, the purpose of this transfer point seems to be to transform awareness into a mode of functioning that makes it possible for it to continue its

journey. One's psychological functioning is radically altered when it begins to attune itself to normally unconscious processes. In all of this, the dream occupies a central place. There are two major points to be made here which underscore the crucial role of the dream. First, many if not all the body independent experiences have the quality of a waking dream. That is, a dream-like mode of functioning pervades these experiences. Second, it may be that when we dream at night, we may sometimes be receiving inputs from the deep unconscious states (e.g., a dream about our birth) or from body independent states (e.g., dreams of flying). Dreaming may serve to filter these experiences which we then "reduce," upon awakening, to the category of "only a dream." If this is true, the psychodynamic conscious is a dual transfer point: through it we pass into dream-colored realms and into it come dream-filtered inputs from those same realms. Thus, dreams may contain the clue that leads us beyond to the realms Freud never charted - the transpersonal world.

Unfortunately, we are in the dark about the factors which determine the gate-keeping functions of this region.

23.5.3. TWO METHODS TO INDUCE BODY INDEPENDENT STATES. Quieting vs. Hyperactive Methods. (Ring, 1976)

One can bring about a state of independence from the body, primarily through quieting down the body. Such means include specific techniques as well as naturally occurring conditions. Examples of the former would be most meditative practices, yoga asanas, hypnotic inductions, autogenic training and sensory isolation procedures. In fact, any manipulation which induces bodily relaxation would qualify. Examples of naturally occurring conditions would be sleep and various conditions associated with illness and death: receiving an anesthetic, comatose states, and certain illness and types of near-death experiences. Under all of these circumstances, the normal cues associated with body functioning are greatly diminished or eliminated from awareness altogether. We might say that under these conditions mind is greatly freed from the usual anchorage of the body.

Also one can bring about transcendence of the body by pushing it toward the opposite extreme, hyper-activity. Techniques inducing such states include certain drugs (e.g., some psychedelics), ritual drumming, trance dancing, shamanistic practices, self-flagellation, and certain forms of therapy (e.g., bioenergetics). These methods can also be found under naturally occurring conditions: some forms of madness (especially "possession states" and manias), feverish illnesses, "creative frenzies," and accidental near-death experiences involving a profound physical shock to the body. In these states the body is treated so violently that it can no longer accommodate the stimulation, bringing about a forcible state of dissociation between mind and body.

It should be noted that certain procedures seem to employ both means. For example, the traditional "vision quest" of the Plains Indian typically required a period of several days in which the seeker fasted, did without sleep, and kept a solitary vigil.

However this condition of minimal bodily anchorage may be accomplished, its effect is to catapult the individual into a realm which we have come to associate with out-of-the-body experiences. Along this dimension of experiences, one can arbitrarily describe regions which intuitively seem to represent qualitatively different types of experience, ranging from the

cosmically banal to the cosmically profound. Wherever one's awareness may be located along this range, however, it must be borne in mind that this continuum of experiences represents as a whole a profound qualitative shift in consciousness, utterly unlike those states associated with the body dependent states. Here one's awareness is functioning within what must be construed as another dimension of existence - that which exists independently of the brain/body system.

23.5.4. BODY INDEPENDENT STATES (from the least to most spiritually valuable experiences)

The experiences which occur here depend on a certain degree of detachment from the body or from body awareness. In general, there are two means by which these conditions can be brought about. The Quieting vs. Hyperactive methods mentioned earlier.

23.5.4.1. Out of the Body Experiences, ESP & Mediumistic Phenomena: (Ring, 1974)

There are realms of consciousness that extend beyond our planet, in the space of extra-terrestrial conscious. A variety of experiences occur in this region, but they all involve elements which are difficult to coordinate with the physical plane and with so-called natural laws as we understand them. The three main types of phenomena which make their appearance here are: a) Out of the body experiences, including the encountering of spiritual entities and guides and traveling to other locations in the universe; b) Extra-sensory perception phenomena, such as telepathy and clairvoyance; c) Mediumistic phenomena, such as automatic writing and spirit possession.

23.5.4.1.1. Out of the Body Experiences:

23.5.4.1.1.1. Garden Variety Astral Journey:

Robert A. Monroe (Journeys Out of the Body, 1971), is a successful businessman who more or less chanced upon the experience of leaving his body. Intrigued and perplexed by his first such experience, he began a systematic series of experiments, using himself as his own subject, in pursuit of understanding this phenomenon and the conditions which facilitate it. His book records dozens of such instances in meticulous detail. Monroe claims to have had out of the body experiences hundreds of times. He had also willingly permitted himself to be studied by independent researchers such as Charles Tart. There is nothing in his book which suggests anything other than scrupulous honesty in his self-reports. Moreover, there are literally thousands of instances recorded in other books and articles on the subject of astral projection and out of the body experiences, many of which closely resemble the features of Monroe's own "trips." This first example is based on an entry in Monroe's diary.

"3/5/59 Morning - In a motel in Winston-Salem: I woke up early and went out to have breakfast at seven-thirty, then returned to my room about eight-thirty and lay down. As I relaxed, the vibrations came and then an impression of movement. Shortly thereafter, I stopped, and the first thing I saw was a boy walking along and tossing a baseball in the air and catching it. A quick shift, and I saw a man trying to put something

into the back seat of a car, a large sedan. The thing was an awkward-looking device that I interpreted to be a small car with wheels and electric motor. The man twisted and turned the device and finally got it into the back seat of the of the car and slammed the door. Another quick shift, and I was standing beside a table. There were people sitting around the table, and dishes covered it. One person was dealing what looked like large white playing cards around to the others at the table. I thought it strange to play cards at a table so covered with dishes, and wondered about the overlarge size and whiteness of the cards. Another quick shift, and I was over city streets, about five hundred feet high, looking for 'home.' Then I spotted the radio tower and remembered that the motel was close to the tower, and almost instantly I was back in my body. I sat up and looked around. Everything seemed normal."

"Important aftermath: The same evening, I visited some friends, Mr. and Mrs. Agnew Bahnson, at their home. They were partially aware of my 'activities,' and on a sudden hunch, I knew the morning event had to do with them. I asked about their son, and they called him into the room and asked him what he was doing between eight- thirty and nine that morning. He said he was going to school. When asked more specifically what he was doing as he went, he said he was tossing his baseball in the air and catching it. (Although I knew him well, I had no knowledge that the boy was interested in baseball, although this could be assumed.) Next, I decided to speak about the loading of the car. Mr. Bahnson was astounded. Exactly at that time, he told me, he was loading a Van DeGraff generator into the back seat of his car. The generator was a large awkward device with wheels, and electric motor, and a platform. He showed me the device. (It was eerie to see physically something you had observed only from the Second Body.) Next, I told about the table and the large white cards. His wife was excited at this one. It seems that for the first time in two years, because they had all arisen late, she had brought the morning mail to the breakfast table and had passed out the letters to them as she sorted the mail. Large white playing cards! They were very excited over the event, and I am sure they were not humoring me." (Monroe, 1971, p. 48-50)

23.5.4.1.1.2. "Entities":

Another common occurrence when functioning at this level of consciousness is encountering "entities." Though sometimes benevolent, they are more often threatening and are intent on gaining control over the individual's body or consciousness. There are many cases of such instances of attempted or successful possession to be found in the literature on spiritualism, magic, witchcraft and madness, but in the West we have typically dismissed these symptoms of possession as hallucinations.

Individuals in this realm of consciousness are occasionally graced by the presence of what appear to be supra-human spiritual beings who have the role of protectors or guides. Such

visitations are potentially available to anyone who has entered this region of consciousness by whatever means. Often the meeting takes place when the individual hovers near death. This was the condition of John Lilly, who has provided us with the following example of an encounter with a supra-human entity (1972):

"The pounding headache, the nausea and the vomiting that occurred forced me to leave my body. I became a focused center of consciousness and traveled into other spaces and met other beings, entities, or consciousness. I came across two who approached me through a large empty space and who looked, felt, and transmitted guiding and teaching thoughts to me.

"It is very hard to put this experience into words, because there were no words exchanged. Pure thought and feeling was being transmitted and received by me and by these two entities. I will attempt to translate into words what occurred. I am in a large empty place with nothing in any direction except light. There is a golden light permeating the whole space everywhere in all directions, out to infinity. I am a single point of consciousness, of feeling, of knowledge. I know that I am. That is all. It is a very peaceful, awesome, and reverential space that I am in. I have no body, I have no need for a body. There is no body. I am just I. Complete with love, warmth, and radiance.

"Suddenly in the distance appear two similar points of consciousness, sources of radiance, of love, of warmth. I feel their presence. I see their presence, without eyes, without a body. I know they are there, so they are there. As they move toward me, I feel more and more of each of them, interpenetrating my very being. They transmit comforting, reverential, awesome thoughts. I realize that they are beings far greater than I. They begin to teach me. They tell me I can stay in this place, that I have left my body, but that I can return to it if I wish. They then show me what would happen if I left my body back there - an alternative path for me to take. They also show me where I can go if I stay in this place. They tell me that it is not yet time for me to leave my body permanently, that I still have an option to go back to it. They give me total and absolute confidence, total certitude in the truth of my being in this state. I know with absolute certainty that they exist. I have no doubts. There is no longer any need for an act of faith; it just is that way and I accept it.

"They say that they are my guardians, that they have been with me before at critical times and that in fact they are with me always, but that I am not usually in a state to perceive them. I am in a state to perceive them when I am close to the death of the body. In this state, there is no time. There is an immediate perception of the past, present and future as if in the present moment. I stayed in this state for many hours in earth time. Then I came back to my body in the hospital." (Lilly, 1972, p. 25-27).

23.5.4.1.1.3. "Space Travel":

Consciousness, when it is functioning in this region, can apparently go anywhere in the universe! This sounds fantastic only because we are accustomed to think of ourselves as bodies having the property of consciousness. If, instead, we think of ourselves as essentially consciousness and not bodies, and if we can entertain the belief that our consciousness can operate independently of our bodies, then the notion of our consciousness traveling to distant spaces of the universe may be seen as a theoretical possibility. In depicting this state, John Lilly observes that consciousness has here been condensed into a single, mobile point. He writes:

"Plus 6 is that state in which one focuses one's consciousness down to a very small point. How small that point is a matter of choice that one makes depending on where one wants to go....Once one has moved into the point, become the point, one can move down into the body, into other people's heads or bodies, or out over the planet, or into outer space, into the galaxy, into the cosmos. As long as one holds together as one identity, a single point, one remains in state +6 no matter how far out, no matter how deep down one is going." (Lilly, 1972, p. 198-199)

23.5.4.1.2. Extra Sensory Perception (ESP):

23.5.4.1.2.1. Cognitive:

A psychic event in which, it is claimed, information is transmitted through channels outside the known sensory channels, either in waking consciousness, trance, or dreams. ESP includes:

- (a). Telepathy - ESP of another person's mental state or thoughts.
- (b). Clairvoyance - ESP of physical objects or events inaccessible to physical vision.
- (c). Precognition - knowledge of future events that cannot be inferred from present knowledge.
- (d). Retrocognition - knowledge of past events beyond the range of normal knowledge.

When ESP occurs in situations that could be telepathy or clairvoyance or both, it is termed general extrasensory perception (GESp). ESP is applied in many specific ways, including psychometry (object reading), radiesthesia (dowsing), and psychic diagnosis. The term clairsentience is sometimes used to include clairvoyance, clairaudience, and other expressions of ESP through sensory modalities.

23.5.4.1.2.2. Physical - Psychokinesis (PK):

A psychic event in which, according to ESP researchers, something is moved or physically affected without the use of any known force that would allow a conventional explanation and usually without direct contact. PK includes;

- (a). Telekinesis - the movement of stationary objects without the use of any known physical force. Also the Random Event Generation (REG) experiments at PEAR (Princeton Engineering Anomalies Research) laboratory. (Jahn and Dunne)
- (b). Teleportation - the movement of objects (called "apports") through other physical objects or over great distances.
- (c). Materialization - an event in which some forms or objects suddenly become visible in solid form.
- (d). Dematerialization - the paranormal disappearance, usually quite rapidly, of an object.
- (e). Levitation (of oneself) - rising into the air by no apparent physical means.
- (f). Psychic healing - the paranormal cure of an illness or disability.
- (g). Psychic surgery - a form of paranormal healing in which diseased tissue is removed from the body without use of instruments.
- (h). Thoughtography - the production of images on unexposed film by thought alone.
- (i). Poltergeists - various paranormal events involving the unexplained movement or breakage of objects, apparently by "noisy spirits."

23.5.4.1.2.3. Mediumship/Channeling

The ability to perceive or communicate with discarnates or to act as a channel through which discarnates communicate.

- a. Hauntings - paranormal phenomena associated with a certain location and attributed to the activity of discarnate spirits.
- b. Apparitions of the dead - a visual appearance, suggesting the real presence, of someone no longer living.
- c. Spirit photography - the appearance, on a photographic plate, of images of dead persons not visibly present when the photograph was taken.
- d. Spirit possession - a state in which a person seems to be under the control in mind and body of another personality, generally thought to be a discarnate (and sometimes non-human) spirit. Channeling is a dramatic and fascinating example of "high level possession."

23.5.4.2. Trans-Individual Conscious (Ring, (1974)

At the trans-individual level, there are several distinct sub-types of experiences which all have in common the transcendence of the individual's own ego boundaries - the sine qua non of the transpersonal experience - and the identification with other persons or with universal types (what Jung called archetypes). The major sub-types of trans-individual experiences are:) Ancestral experience; b) Past incarnation experiences; c) Collective and racial experiences; d) Archetypal experiences.

23.5.4.2.1. Ancestral Experiences. This type is actually a mix of body dependent and independent experiences. The core of this experience is that the individual feels that he is exploring his own genetic lineage and is reliving episodes from the lives

of his ancestors. Sometimes these experiences seem to go back only a generation or so, but occasionally they go back several centuries. So, for example, a modern-day Jew might experience episodes from Biblical times- or a contemporary Scandinavian might relive scenes from the adventures of his Viking ancestors.

Stanislov Grof states that an important characteristic which differentiates the ancestral experience from collective and racial ones is "the convinced feeling of the subject that he is confronted with real elements of his own individual history, reading his own genetic code" (Grof. 1972, p. 60).

23.5.4.2.2. Past Incarnation Experiences. Here, individuals report experiencing in a vivid, dramatic and convincing way scenes or fragments of scenes that happened at another time and place in history. The emotions which accompany these experiences tend to be very powerful and frequently negative. They are linked to a feeling that these events actually happened in one of the individual's past lives. Furthermore, the subject often gains a compelling, intuitive understanding of the Law of Karma as well as a direct apprehension of the phenomenon of reincarnation. These experiences tend to bypass biological hereditary lines and violate genetic laws. Accordingly, it is the belief of some researchers who trust in the validity of these reincarnation episodes that the individual has not only a biological link to his own personal ancestors, but a spiritual bond as well as the evolution of his own consciousness.

23.5.4.2.3. Collective and Racial Experiences. Individuals frequently experience episodes from various cultures in the history of mankind. In this sub-type of trans-individual consciousness, however, the experience itself seems to be independent of the subject's own racial background, cultural tradition, training, education or interests. So, for instance, an Anglo-Saxon can experience episodes which are related to an Oriental culture. Again, the detail is often very fine and can sometimes be verified by reference to independent sources that are often so specialized and difficult to come by that the subject himself could hardly have consulted them.

What distinguishes these accounts from both ancestral and reincarnation experiences is the subjective belief of the individual that he is not exploring his own personal history here. He is somehow just "plugged into" it - as though there were a racial or collective unconscious containing the whole of human history to which, under certain conditions, one can gain access.

23.5.4.2.4. Archetypal Experiences. This is the realm of consciousness that we identify with the work of Carl Jung, and his idea of the collective unconscious. This idea implies that beyond one's own personal unconscious (the psychodynamic and ontogenetic regions), there exists a repository of man's historical and cultural development which is independent of any particular individual, setting, or historical period - a trans-individual form of consciousness. For Jung the contents of the collective unconscious are made up of universal symbols of human experience which he called archetypes (or primordial images).

At the level of the trans-individual unconscious, we appear to enter a realm composed of universal forms or patterns which stand outside any particular culture or historical era. The idea seems to bear a conceptual kinship to Plato's Laws of Forms, except that we are concerned only with forms that affect the human psyche.

23.5.4.3. Visionary States (Ring, 1976)

"Visionary States" represent a quantitative extension of transindividual experiences. Included here are states of "ritual possession" (as in shamanistic practices); prophetic, revelatory visions; and the encounter with or "possession" by "disembodied entities" - either beneficial or malevolent - which tend to be reported in conjunction with some forms of madness or near-death experiences. Of the regions comprising the body independent continuum, visionary states are the most intense and personally affecting. Positive experiences inspire the highest ecstasy (the term "ecstasy" literally means "out of place," i.e. beside oneself = out of body), negative experiences, bone-shaking terror. In short, in their extreme form, these are the states of heaven and hell. Such experiences have the power to transform cultures as well as individual lives.

23.5.4.4. The Superconscious

Beyond both reference axes lies the superconscious.

"As we get to these outermost regions of the map, we have less and less to say, for as we reach the edge of consciousness itself, the experiences become increasingly ineffable. Nevertheless, we can assert that the nature of the experience at this realm involves a profound spiritual ecstasy. While consciousness is centered here, the individual is convinced that he is experiencing the ultimate force in the universe. One way in which this experience has been described is that the individual feels his consciousness merged with that of the Universal Mind. The experience is said to be one of infinite existence, infinite wisdom and infinite bliss. During the time the individual remains in this state of consciousness, the whole process of creation may be understood." (Ring, 1974)

The gap between the two reference axes and the superconscious suggests that body dependent and independent states can and do lead in the direction of the super-conscious but both stop short of merging with it. The superconscious represents a kind of ultimate state in which one no longer merely has an experience - one is the experience. (Ring, 1976)

23.5.4.5. The Void (Ring, 1974)

We can playfully suggest the void by saying that it is "encountered" when you stand with your back toward the created universe. The void is the universe in its unmanifested form - therefore nothing can be said about it.

According to Grof, the void is experienced as underlying the whole creation: "It is beyond time and space, beyond any change, and beyond polarities such as- good and evil, light and darkness, stability and motion, agony and ecstasy" (Grof, 1972, p. 75). In short, it is a state

beyond any content whatever. In the Buddhist concept of Nirvana awareness has as its object the cessation of consciousness. Consequently, with the attainment of Nirvana, this journey out to the remote regions of consciousness comes to an end.

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23.6. THE DEVELOPMENTAL SPECTRUM OF CONSCIOUSNESS, PSYCHOPATHOLOGY, and THERAPY

23.6.1. INTRODUCTION

(from The Collected Works of Ken Wilber, vol. 4 introduction taken from the internet source
See Table 23.6.1. for the overview.

"This phase-3 model [of the development of Wilbers thought] was first presented in "Ontogenetic Development: Two Fundamental Patterns," in The Journal of Transpersonal Psychology, vol. 13, no. 1, 1981 (which was included in volume 3 of the Collected Works). That was followed by a two-part series in the same journal, "The Developmental Spectrum and Psychopathology: Part 1, Stages and Types of Pathology; Part 2, Treatment Modalities," which were then included in Transformation of Consciousness: Conventional and Contemplative Perspectives on Development (included in volume 4 of the Collected Works), which I [Wilber] coedited with Harvard psychologists Jack Engler and Daniel P. Brown (with contributions by Mark Epstein, Jonathan Lief, and John Chirban). Both Engler and Brown had done pioneering--and still unsurpassed--research into the cross-cultural stages of the meditative path. What they found--using, I [Wilber] might add, a perspective of dynamic dialecticism--was the following: 'The major [spiritual] traditions we have studied in their original languages present an unfolding of meditation experiences in terms of a *stage model*: for example, the Mahamudra from the Tibetan Mahayana Buddhist tradition; the Visuddhimagga from the Pali Theravada Buddhist tradition; and the Yoga Sutras from the Sanskrit Hindu tradition [these were subsequently checked against Chinese and Christian sources]. The models are sufficiently similar to suggest an underlying common invariant sequences of stages, despite vast cultural and linguistic differences as well as styles of practice.... The results strongly suggest that the stages of meditation are in fact of cross-cultural and universal applicability (at a deep, not surface, analysis).' In the same volume we included an in-depth study

by Harvard theologian John Chirban of the stages of spiritual development evidenced by saints in Eastern Orthodox Christianity. Chirban's conclusion: 'Although each saint describes his own experience (often in his own unique way), basic parallels emerge as one compares the stages of the saints with one another. This sameness confirms the catholicity of their experience...' --and the catholicity (or universal applicability) of the basic waves of consciousness themselves, which are similarly reflected in these numerous cross-cultural sources..."

"Transformations of Consciousness took as a reference point an enduring truth of the Great Nest of Being: the unfolding of ever-richer realms of consciousness, from matter to body to mind to soul to spirit. My [Wilber] chapters focused on outlining a full-spectrum model of consciousness, which consisted of three major components: 1) the *basic structures* or levels or waves of consciousness--*matter*, vital *body* (sensation, perception, impulse), *mind* (image, symbol, concept, rule/role, formal-reflexive, vision-logic), *soul* (psychic, subtle), and *spirit* (causal, nondual); 2) the numerous different *developmental lines or streams* (such as self-identity, self-needs, and morals) that proceed through those major waves; and 3) the *self* (or self-system), which has to integrate all of the various waves and streams."

"Focusing on the self and its journey through the basic waves of the Great Nest, I [Wilber] examined *the major milestones in the self's development*. Each milestone of self-development I called a *fulcrum*, which is a 1-2-3 process of fusion/embeddedness, differentiation/transcendence, and inclusion/integration. That is, the growth of the self involves a progressive identification with a particular wave in the Great Nest, followed by a differentiation from (and transcendence of) that wave, which is then included and integrated from the next higher wave in the Great Hierarchy. The self's evolution is thus transcend-and-include, as deeper and higher waves of the Great Nest of Being unfold in its own case, from matter to body to mind to soul to spirit."

"Of course, development is not nearly as sequential as that sounds; and, given the fact that there are actually numerous different developmental lines all moving relatively independently through the Great Nest, the self's *overall development* is very uneven and nonlinear--it can make progress in cognitive, emotional, psychological, spiritual, and other lines *in a very uneven way*, nor must any of those lines be completed before the others can begin. There is nothing sequential or stage-like about overall development..."

"What seemed to confuse a few critics is that, even though overall development is not linear or sequential, a great deal of empirical evidence continues to demonstrate that many of the *individual developmental lines* themselves (such as cognitive, ego, and moral) do in fact unfold in a relatively invariant, holarchical sequence (they unfold through the universal waves of the Great Nest of Being--preconventional to conventional to postconventional to post-postconventional. This evidence is discussed at length in Integral Psychology, and summarized in figs. II and III in that book...)..."

"The preponderance of evidence strongly suggests that... sequentiality is ...true for the developmental line of *self-identity*, or what Jane Loewinger has investigated as "ego development." I [Wilber] call this immediate sense of self-identity the "proximate self" because it is intimately experienced as an "I" (in distinction to the distal self or "me"). And, as I [Wilber] started to say, each time the *proximate self* moves through a basic wave of the Great Nest, it goes through a *fulcrum* of its development: it first identifies with a new wave, then disidentifies with and

transcends that wave, then includes and integrates that wave from the next higher, wider wave. I [Wilber] summarized the Great Nest as possessing nine basic waves of consciousness (sensorimotor, phantasmic-emotional, rep-mind, rule/role mind, formal-reflexive, vision-logic, psychic, subtle, and causal/nondual), and therefore I outlined the *nine correlative fulcrums* that the self goes through in a complete evolution or development through the entire Great Nest."

"Each time the self steps up to a new and higher sphere in the Great Nest of Being, it can do so in a relatively healthy fashion--which means it smoothly differentiates and integrates the elements of that level--or in a relatively pathological fashion--which means it either *fails to differentiate* (and thus remains in fusion/fixation/arrest) or it *fails to integrate* (which results in repression, alienation, fragmentation). Each wave of the Great Nest has a qualitatively different architecture, and thus each fulcrum (and pathology) likewise has a qualitatively different structure. I [Wilber] therefore outlined *nine levels of pathology* (psychosis, borderline, neurosis, script, identity, existential, psychic, subtle, causal), and suggested the correlative *treatment modalities* that seem to best address these different waves of pathology (pacification, structure building, uncovering, cognitive, introspection, existential, the path of yogis, saints, and sages). All of these--the nine basic structures, the correlative self-fulcrums, the types of self pathology that can be generated if something goes wrong at each fulcrum, and the treatment modalities that seem best suited to each..."

"Needless to say, these were meant only as the most general of generalizations, useful insofar as they alert us to the very different contours of the various waves in the Great Nest of Being, and the correlatively different fulcrums of the self's journey through those waves. All too often, one particular psychotherapeutic approach (psychoanalysis, Gestalt, neurolinguistic programming, holotropic breathwork, transactional analysis, biological psychiatry, etc.) is used for *all* types of psychopathologies, often with unfortunate results. Rather, the one thing we learn from the existence of the multiple waves of the spectrum of consciousness is just how many different dimensions of existence there are, and how a sensitivity to these multiple dimensions demands a multiplicity of treatment modalities."

"The nine general levels of therapy that I [Wilber] outlined are meant to be suggestive only; they are broad guidelines as to what we can expect, based on a careful reading of the evidence compiled by numerous different schools of developmental psychology and contemplative spirituality (an overview of this evidence is given in Integral Psychology). There is, needless to say, a great deal of overlap between these therapies. For example, I [Wilber] list 'script pathology' and 'cognitive therapy' as being especially relevant to fulcrum-4, which is where the self identifies, for the first time, with the rule/role mind. That is, the self can begin to take the *role* of others and learn the *rules* of its society. If something goes wrong during this general developmental period (which typically covers ages 6 to 12), the result is a 'script pathology,' a series of distorted, untrue, unfair ideas and scripts about one's self and others. Cognitive therapy has excelled in rooting out these maladaptive scripts and replacing them with more accurate, benign, and therefore healthy ideas and self-concepts. But to say cognitive therapy focuses on this wave of consciousness development is *not* to say it has no benefit at other waves, for clearly it does. The idea, rather, is that the farther away we get from this wave, the less relevant (but never completely useless) cognitive therapy becomes. Developments in fulcrums 1 and 2 are mostly preverbal and preconceptual, so conceptual reprogramming does not directly address these levels; and developments beyond fulcrum-6 are mostly transmental and transrational, so mental reprogramming, in and of itself, is limited in its

effectiveness. So it is not that a given therapy applies only to one narrow wave of development, but that, in focusing on one or two waves, most forms of therapy increasingly lose their effectiveness when applied to more distant realms."

"Also, it is generally true, as I [Wilber] first suggested in The Spectrum of Consciousness, that the therapies of one level will acknowledge and often use the therapies from lower levels, but they are reluctant to recognize any level higher than their own. Thus, classical psychoanalysis will recognize the importance of instinctual and emotional drives, but downplay the importance of cognitive scripts themselves. Cognitive therapists emphasize the importance of those scripts but downplay or ignore the importance of the total psychophysical organism (or centaur), which humanistic and existential therapists emphasize. And existential therapists often vehemently deny the importance or even existence of the transpersonal and transrational levels. By assigning each therapy a general level on the overall spectrum of consciousness, I [Wilber] was also taking those particular facts into account--the therapy at one level will usually acknowledge and even use all of the therapies from lower levels, rarely from any higher (whose existence, in fact, they usually pathologize)."

"Transformations of Consciousness focused almost exclusively on interior developments in individuals--focused, that is, on what I [Wilber] would later call the Upper Left quadrant. Its conclusions are still quite sound for that quadrant, I [Wilber] believe, but a more balanced view would also include insights from all four quadrants, even when trying to understand individual development and pathology (as explained in Integral Psychology). The subjective events in individual consciousness are *always* intimately interrelated with objective events (such as brain physiology), intersubjective events (such as cultural background and context), and interobjective events (such as social institutions and the techno-economic base). As Sex, Ecology, Spirituality and A Brief History of Everything explained at length, all four of those quadrants mutually interact (they are embedded in each other), and thus all of them are required in order to understand any of them. The conclusions of Transformations of Consciousness are still valid, they simply need to be inserted into a four-quadrant view, which would include an understanding of the role of neurophysiology on consciousness development and neuropharmacology on psychopathology (Upper Right), as well as the role of multiple cultural contexts (Lower Left) and modes of social production (Lower Right)--all of which, as we will see, are emphasized in Integral Psychology. Ironically, now that biological psychiatry and cognitive science have attempted to reduce all interior consciousness to objective its--reduce Upper Left to Upper Right--the conclusions of Transformations of Consciousness need all the more desperately to be included in an integral view of consciousness."

"The great sages, we might suppose, have traversed all, or certainly most, of the waves in the Great Nest of Being; but since that it relatively rare, to put it mildly, few therapists would ever see all nine fulcrums of self development. Many therapists told me [Wilber], after reading Transformations of Consciousness, that what they saw in therapy did not look like that nine-level map! I quite agree. In fact, most forms of typical psychotherapy deal only with a few levels: mostly fulcrum-3 (which involves uncovering and integrating repressed feelings and shadow elements), fulcrum-4 (which involves belongingness needs and cognitive reprogramming of harsh scripts), and fulcrums 5 and 6 (which involve self-esteem and self-actualization). In terms of "contacting feelings" and "uncovering the shadow," most therapeutic work occurs at fulcrum-3, which is the point where the conceptual mind first emerges and differentiates-and-integrates the body (typically during the oedipal/electra period, ages three to six). Therapies that have focused on this important fulcrum

include, of course, psychoanalysis, and two of its more popular and effective offshoots, Gestalt Therapy and Transactional Analysis (both of which also focus on cognitive scripts, which thicken at fulcrum-4, but both of which aim to dig deeper, into fulcrum-3, and expose the psychodynamics and repressed feelings that often underlie script pathology)...."

"...each level of development has a different view of the world--a different worldview, a different paradigm--and that consequently, each of us has, in simply growing up, *already gone through at least a half-dozen paradigm revolutions* , from archaic to magic to mythic to rational to integrative (on the way to transmental levels altogether)." The following is taken from Wilber, Engler and Brown, (1986)

Section 23.6.2 describes the nine levels or stages of development of consciousness along with the self (or self-system) that is developing thorough these stages.

Section 23.6.3 describes the particular pathologies that may arise at any of these levels or stages of development of consciousness.

Section 23.6.4 describes the types of possible treatment modalities or therapeutic interventions that seem most appropriate for each of these classes of pathology.

HERMAN



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	Basic Structures of Consciousness and Corresponding Fulcrums/Milestones of Self-Development	Characteristic Psychopathologies	Treatment Modalities
T r a n s	9. Causal. Unmanifest source or ground of all. Formless	Causal Pathology	Path of Sages
	8. Subtle. Seat of actual archetypes and Platonic Forms	Subtle Pathology	Path of Saints
	7. Psychic. Culmination of vision-logic and visionary insight	Psychic Disorders	Path of Yogis
p e r s o n a l	6. Existential; Vision Logic	Existential Pathology	Existential Therapy
	5. Formal-Reflexive. Formal operational thinking	Identity Neuroses	Introspection
	4. Rule/Role Mind. Concrete operational thinking	Script Pathology	Script Analysis
P r e p e r s p i c i t y	3. Rep-Mind. Pre-operational thinking.	Psychoneuroses	Uncovering Techniques
	2. Phantasmic-Emotional, sexual	Narcissistic-Borderline Disorders	Structure-Building Techniques
	1. Sensoriphysical. Matter, sensation, perception	Psychoses	Physiological/Pacification

Undifferentiated Matrix

Table 23.1. Correlations of Structures, Fulcrums (Developmental Milestones/Choice points/Stages), Psychopathologies, and Treatments

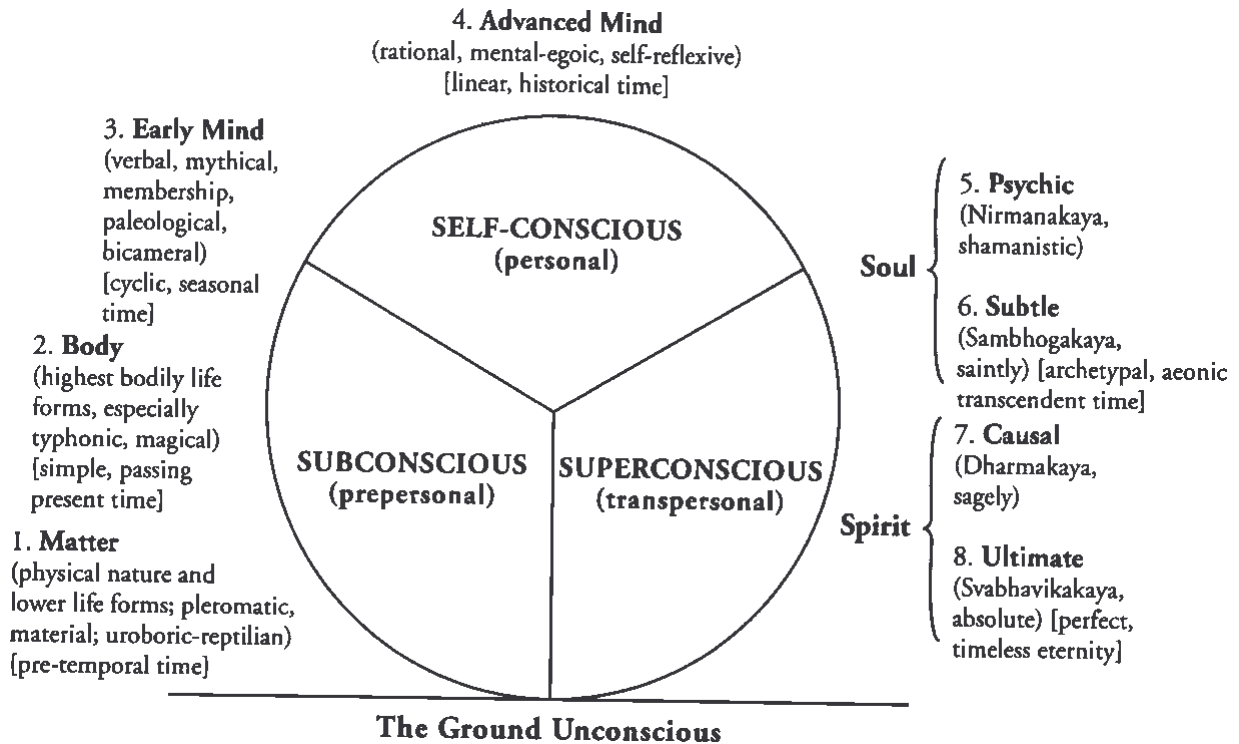


Figure 23.8. The Great Nest of Being and the Complete Developmental Sequence from Up From Eden.

23.6.2. THE SPECTRUM OF DEVELOPMENT OF CONSCIOUSNESS

The following is taken from Wilber, Engler and Brown, (1986)

Section 23.6.2 describes the nine levels or stages of development of consciousness along with the self (or self-system) that is developing thorough these stages. See Table 23.1. and Figure 23.8. for the overview.

23.6.2.1 THE BASIC AND TRANSITION STRUCTURES AND SELF SYSTEM

"...[T]he structures or formations of the psyche are divided into two general types: the basic structures and the transition structures (each of which contains numerous different developmental lines). The *basic structures* are those structures that, once they emerge in development, tend to remain in existence as relatively autonomous or sub-units in the course of subsequent development...*Transition structures*, on the other hand, are phase-specific and phase-temporary structures that tend to be more or less entirely replaced by subsequent phases of development... basic structures tend to be subsumed, included, or subordinated in subsequent development,... transition structures tend to be negated, dissolved, or replaced by subsequent development...Negotiating these structural developments is the self (or self-system), which is the locus of identification, volition, defense, organization, and 'metabolism' ('digestion' of experience at each level of structural growth and developments). (p. 67) "[T]he nine major levels presented are

functionally dominant in development, and... an adequate and fairly accurate account of development can be presented with...these nine general levels." (p. 74)

23.6.2.1.1. THE BASIC STRUCTURES

"The most notable feature about a basic structure or level of consciousness is that, once it emerges in human development, it tends to *remain in existence* in the life of the individual during subsequent development. Even though it is eventually transcended, subsumed, and subordinated by the self's movement to higher basic structures, it nevertheless retains a relative autonomy and functional independence. The basic structures of consciousness are, in effect, what is known as the Great Chain of Being... [Wilber presents] the nine most central and functionally dominant structures." (pp. 66-67)

PRE-PERSONAL REALM

23.6.2.1.1.1. UNDIFFERENTIATED MATRIX: "The person at first is almost purely a biological organism with instinctual, reflexive and thalamic responses to stimuli, a primitive unintegrated ego and purely somatic defense mechanisms to maintain homeostatic equilibrium with no discrimination between inside and outside, self and other." (p. 86)

23.6.2.1.1.2. SENSORIPHYSICAL: "The realms of matter, sensation and perception, sensory motor functioning."

23.6.2.1.1.3. PHANTASMIC-EMOTIONAL: "The emotional-sexual level and the phantasmic level or image mind, the simplest form of mental 'picturing using only images.'"

PERSONAL REALM

23.6.2.1.1.4. REP-MIND: "Representational mind, preoperational thinking (preop) develops in two states -- symbols (2-4 years) and concepts (4-7 years). A symbol goes beyond a simple image (the phantasmic mind) in this essential respect: an image represents an object pictorially, while a symbol can represent it non-pictorially or verbally... symbolic representation is a higher, more difficult, and more sophisticated cognitive operation. A *concept* is a symbol that represents... a *class* of objects or acts." (pp. 69, 71)

23.6.2.1.1.5. RULE/ROLE MIND: Concrete operational thinking (conop)... "can begin to take the *role* of others. It is also the first structure that can clearly perform rule operations, such as multiplication, division, class inclusion, hierarchization etc." (p. 71)

23.6.2.1.1.6. FORMAL-REFLEXIVE MIND: Formal operational thinking (formop)... "the first structure that can not only think about the world but think about thinking... the first structure that is clearly self-reflexive and introspective... the first structure capable of hypothetico-deductive or propositional reasoning... which, among other things, allows it to take genuinely pluralistic and more universal views... [it] apprehends and operates on *relationships*." (p. 71)

23.6.2.1.1.7. VISION-LOGIC: "[A] cognitive structure beyond or higher than... 'formal operational.'... [W]hereas the formal mind establishes relationships, vision-logic establishes

networks of those relationships (i.e., just as formop 'operates on' conop, so vision-logic 'operates on' formop). Such vision or panoramic logic apprehends a mass network of ideas, how they influence each other and interrelate;... the beginning of truly higher-order synthesizing capacity, of making connections, relating truths, coordinating ideas, integrating concepts... This...is the highest integrative structure of the *personal* realm." (p. 71-72)

TRANS-PERSONAL REALM

23.6.2.1.1.8. PSYCHIC: "[T]he culmination of vision-logic and visionary insight... [I]t marks the beginning or opening of transcendental, transpersonal, or contemplative developments: the individual's cognitive and perceptual capacities apparently become so pluralistic and universal that they begin to 'reach beyond' any narrowly personal or individual perspectives and concerns... [A]t this level an individual *begins* to learn to very subtly inspect the mind's cognitive and perceptual capacities, and thus to that extent begins to *transcend* them." (p. 72)

23.6.2.1.1.9. SUBTLE: "[T]he ...seat of actual archetypes, of Platonic Forms, of subtle sounds and audible illuminations of... transcendent insight and absorption...[T]his level is the home of personal deity-form." (p73)

23.6.2.1.1.10. CAUSAL: "[T]he... unmanifest source or transcendental ground of all the lesser structures...the universal and formless self ('Atman') common in all and to all beings." (p. 73)

23.6.2.1.1.11. ULTIMATE: "Passing fully through the state of cessation or unmanifest causal absorption, consciousness is said finally to re-awaken to its prior and eternal abode as absolute Spirit, radiant and all-pervading, one and many, only an all -- the complete integration and identity of manifest Form with the unmanifest Formless...[T]he ultimate is not one level among others, but the reality, condition, or suchness of all levels." (p. 74)

23.6.2.1.2. THE TRANSITION STAGES (OR SELF-STAGES)

"The transition structures are ones that are not included and subsumed in subsequent development but tend instead to be negated, dissolved or *replaced* by subsequent development...[Basic structures, once they come] into existence, ...remain in existence during subsequent development...A simple metaphor may be useful to explain...The basic structures themselves are like a ladder, each rung of which is a level in the Great Chain of Being. The self (or the self-system) is the climber of the ladder. At each rung of that climb, the self has a different view or perspective on reality, a different sense of identity, a different type of morality, a different set of self-needs, and so on. These changes in the sense of self and its reality, which shift from level to level, are referred to as transition structures or...*self-stages* (since these transitions intimately involve the self and its sense of reality)...Each basic structure, then, *supports* various phase-specific transitional structures of self-stages, such as different self-needs,... different self-identities,...and different sets of moral responses. (p. 76)

23.6.2.1.3. THE SELF-SYSTEM

"So far, we have briefly examined the basic rungs or levels in the overall ladder of development, and the transition states (or self-stages) that occur as the self 'climbs' or progresses through those

rungs in the course of its own growth. We now turn to the climber itself: the self (or self-system or self-structure). [T]he self-system possesses the following basic characteristics:

- "1. *Identification*: The locus of what the self will call the self will call "I" (*central* or *proximate self* or subjective self) and the "me" (the *distal self* or objective self). (p. 78)
- "2. *Organization*: That which attempts to give unity to the mind. It is not just a synthesis of the parts or substructures, but is an independent organizing principle. (p. 78)
- "3. *Will*: The locus of free choice, but free only within the limits set by the basic structures of its present level of adaptation. (p. 79)
- "4. *Defense*: "The self is the locus of the defense mechanisms (which develop and change hierarchically from level to level of the basic structures); defense mechanisms in general are considered normal, necessary, and phase-appropriate functions; however, if over- or under-employed, they become morbid or pathological." (p. 79)
- "5. *Metabolism*: "One of the central tasks of the self is to 'digest' or 'metabolize' the experiences presented to it at each rung of development... Object relations theorists... speak of pathology as 'failed metabolism'-- the self fails to digest and assimilate significant past experiences, and these remain lodged... in the self-system, generating psychological indigestion (pathology). The basic structures of consciousness, in fact, can be conceived as *levels of food* ... These levels of food... are really levels of object relations, and how the self handles these 'food objects' ('self-objects') is a central factor in psychopathology." (p. 79)
- "6. *Navigation*: "At any rung on the developmental ladder (except the two end points), the self is faced with several different 'directional pulls.'... [I]t can (within limits) choose to remain on its present level of development, or it can choose to release its present level in favor of another. If it releases its present level, it can move up the hierarchy of basic structures or it can move down. *On* a given level, then, the self is faced with preservation vs. negation, holding on vs. letting go, living that level vs. dying to that level, identifying with it vs. dis-identifying with it. *Between* levels the self is faced with ascent vs. descent, progression vs. regression, moving up the hierarchy to levels of increasing structuralization, increasing differentiation-and-integration, or moving down to less organized, less differentiated and less integrated structures." (p. 79-80)

23.6.2.1.4. SUMMARY OF OVERALL DEVELOPMENT OF THE SELF-SYSTEM

"As the basic structures or rungs begin chronologically to emerge and develop, the self can *identify* with them... Once centrally identified with a particular basic structure, the self, or the self's preservation drive, will seek to consolidate, integrate, and organize the resultant overall complex. This initial identification with a particular basic structure is normal, necessary, and phase-appropriate, and it gives rise to the particular self-stage... associated with or supported by that basic structure."

"If...the central self is to ascend the hierarchy of basic structural development--to grow--then eventually it must release or negate its *exclusive* identification with its present basic rung in order to identify with the next higher rung in the developmental ladder...[I]t must dis-identify with or detach from an exclusive involvement with that level--in order to ascend to the greater unity, differentiation, and integration of the next higher basic level."

"Once identified with the new and higher basic structure, a new and phase-specific self-stage swings into existence; a new self-sense, with new self-needs, new moral sensibilities, new object relations, new forms of life, new forms of death, new forms of 'food' to be metabolized, and so forth. The lower self-stage is (barring fixation) released and negated, but the lower basic structure remains in existence as a necessary rung in the ladder of consciousness, and must therefore be *integrated* in the overall newly configured individual. Once on the new and higher level, the self then seeks to consolidate, fortify, and preserve *that* level, until it is once again strong enough to die to that level, *transcend* that level (release or negate it), and so ascend to the next developmental rung. Thus, both preservation and negation (or life and death) apparently have important phase-specific tasks to accomplish." (p. 80-81)

"...[P]reservation and negation both serve important phase-specific tasks, and... *pathology seems to develop if either (or both) of these tasks is misnavigated*. 'Health' or 'normal' preservation occurs when the identifications and object relations of a particular level are being built, consolidated, and integrated... Morbid preservation... occurs when the once-appropriate identifications and object relations of a particular level are not released to allow room for newer and higher ones. Morbid preservation... is nothing but *fixation*."

"Healthy or normal negation serves several important functions. *Horizontally*, it helps differentiate self and object representations... vertically, it helps the disidentification, differentiation, separation, or transcendence of the lower level in favor of the higher. Morbid negation,... is a differentiation or dis-identification from a component before it has been properly integrated, digested, and assimilated. The component is merely split off from the personality. Morbid negation... is simply *repression* (or dissociation, splitting, etc., depending upon the level of structural organization of the defense itself)." (p. 82, underlining added)

23.6.2.1.5. THE FULCRUM OF DEVELOPMENT (CHOICE POINTS and SELF-OBJECT DIFFERENTIATION)

1. *The first fulcrum ('hatching' stage)-- autistic, symbiotic, and differentiating sub phases.* "...[T]he self-system must negotiate the emergence of the physical and sensoriperceptual basic structures of existence. Should this hatching fail, the self-system remains locked in its own autistic-symbiotic orbit, unable, in the worst cases, to even differentiate its sensoriphysical self from the sensoriphysical surround (autistic and symbiotic psychoses); consequently it cannot advance to the second major fulcrum..." (pp. 90-91)

2. *The second fulcrum-- phantasmic-emotional separation-individuation.* "Should it negotiate this first fulcrum adequately... the sensoriphysical organism is adequately differentiated from the sensoriphysical surround. At this point, the self enters the second fulcrum of development, where it must negotiate the emergence and growth of the next major basic structures of existence, the emotional and phantasmic. This involves a differentiation... within the organism itself...---a differentiation of internalized self-images from internalized object-images." (p. 91)

3. *The third fulcrum -- oedipal phase; the differentiation/integration of the (rep) mind and the (emotional-libidinal body.* "[I]t involves a process of increasing internalization, increasing structuralization and hierarchization, increasing separation-differentiation, and increasing

integration... occurring on a new, higher, and qualitatively different level of organization, that of the *newly emerging* basic structures of the conceptual rep-mind, which bring the possibilities of a qualitatively different set of self-defenses (repression), of self-needs, object-relations, possible pathologies (psychoneuroses), and so on... A developmental lesion at this fulcrum results in a *neurotic self-structure*; the central self remains fixated (morbid preservation) to certain bodily impulses, or it represses or dissociates (morbid negation) certain bodily impulses. If, however, this third fulcrum is adequately negotiated, the mind and body are clearly differentiated and integrated in the new and higher-order conceptual self-structure, with a new and higher internalization (superego), and the capacity for *conceptual object constancy* -- the power to hold a whole concept, or class of properties, without confusing or collapsing its component members due to, e.g., libidinal desires." (pp. 94-96)

"The first three fulcrums of self-development simply represent the self's climb up the first three rungs of the ladder of major basic structures. At each fulcrum, the self identifies (normal preservation) with the corresponding basic structure, and thus is initially fused with, or undifferentiated from, that structure and its phenomenal objects. This is followed by a period of separation-differentiation (normal negation), wherein the self-system or self-structure learns to differentiate itself from both the objects of that level and the subject of the previous level (that is, it transcends its previous and exclusive subjective identification with the previous and lower basic structure). If at any fulcrum there is morbid preservation (fixation) or morbid negation (splitting, dissociation, repression), a characteristic pathology emerges, marked by the level of structural organization at which the lesion occurs... [T]he remaining basic structures or rungs (levels 4 through 9) each involve another and crucial fulcrum of self-development, and lesions at those fulcrums also generate specific and definable pathologies (which in turn respond to different treatment modalities or therapeutic interventions)."

4. The fourth fulcrum -- the differentiation/integration of the rule/role (conop) mind and the (rep) oedipal projects. "[T]he central self transcends its exclusive identification with the rep-mind (and its oedipal projects) and begins to identify with the rule/role mind. The rule/role mind (or 'conop')... is the first structure that not only can imitate a role, but can actually take the role of others. This opens up an entirely new dimension of object relations, with a new sense of self..., a new set of self needs..., a new moral sensibility..., a new mode of life and a new mode of death... The life/death battles... center more on its rules and roles -- a desire to fit in, to belong, to find its place or role among other roles; to understand the rules; with a correlative fear of losing face, losing role, breaking the rules..." (p. 115)

5. The fifth fulcrum -- the differentiation/integration of the formal reflexive (formop) mind and the (rule/role) unreflexive binding to social roles and conventional morality. "[A] highly differentiated, reflexive, and introspective self-structuralization. [F]or the first time [the self] can depend on its own individual principles of reason and conscience... [T]he self can conceive possible (or hypothetical) futures ...with entirely new goals, new possibilities, new desires (life), and new fears (death)...It becomes a philosopher, a dreamer in the best and highest sense..." (p116)

6. The sixth fulcrum -- the differentiation/integration of the existential ("vision logic" and systems approach) mind with body-mind integration (centauric self) and the (formop) binding to linear logic. "The existential approach looks at each stage of development, not just in terms of its content,... but also from the context or categories of existence itself, of the various modes and stages

of being-in-the-world.... [T]he self structure of this level... is one where 'mind and body are both experiences of an integrated self.'" "[T]he major concerns of the... existential self are: personal autonomy and integration...; authenticity...; and self-actualization... Associated affects are: a concern for overall *meaning* in life (or being-in-the-world); a grappling with personal mortality and finitude; and finding a courage-to-be in the face of lonely and unexpected death... [T]he existential mind (via vision-logic) *adds up* the possibilities and finds this: personal life is a brief spark in the cosmic void." (p. 117-118)

7. *The seventh fulcrum -- the differentiation/integration of the psychic mind and the existential, systems approach ("vision logic") limitations.* There is information in the discussion of "psychic disorders." section 23.6.3.3.)

8. *The eighth fulcrum -- the differentiation/integration of the subtle basic structure of consciousness and the turmoil of beginning psychic awakening.* There is information in the discussion of "subtle disorders" section 23.6.3.3.)

9. *The ninth fulcrum -- the differentiation/integration of the last major fulcrum of self-development and dualistic identifications.* There is information in the discussion of "causal disorders" section 23.6.3.3.)

23.6.3. THE STAGES AND TYPES OF PATHOLOGY

The following is taken from Wilber, Engler and Brown, (1986)

Section 23.6.3 describes the particular pathologies that may arise at any of these levels or stages of development of consciousness. See Table 23.1. and Figure 23.8. for the overview.

23.6.3.1. THE PRE-PERSONAL PATHOLOGIES

1a. Fulcrum: Autistic Psychoses,

1b/c. Fulcrum: Symbiotic Infantile Psychoses, Most adult Schizophrenia, Depressive Psychoses

"The lowest self-structures (autistic, symbiotic, and narcissistic) tend to be *monadic* in nature; the borderline structures, *dyadic*, and the psychoneurotic structures, *triadic*. In the monadic structures, there is basically one player on the stage -- the self is either oblivious of the other (autistic), merged with the other (symbiotic), or part of an omnipotent dual unity with the other (narcissistic). As the monadic structure differentiates, self and other emerge as two distinct, if sometimes tenuous units. There are not two players of the stage, self and (m)other, with all the joy and all the tragedy that that involves." (p. 111-112)

2a. Fulcrum: Narcissistic Personality Disorders. "[T]he self- and object-representations...consist of a grandiose-self-plus-omnipotent-object fused unit. Other persons are *experienced*,... not as separate individuals... with rights and wishes of their own, but as extensions or aspects of the grandiose-exhibitionistic self, serving primary need gratification. The sole function of the world is therefore to *mirror* the self's perfection... The grandiose-self/omnipotent-object fused unit forms the central self; so airtight is this fused unit that it seemingly conceals the underlying empty-rageful-envious fused

unit and its affect of profound abandonment depression. (p. 109) ..."[T]he central self is...a more or less stable phantasmic-emotional-libidinal structure... [T]he self at this stage simply *is* a libidinal self." (p. 112)

2b. Fulcrum: Borderline Personality Disorders. "Unlike the narcissistic structure, the borderline has achieved a partial or quasi-differentiation of self and object representations. A separate individual has started to emerge, but its structure is so tenuous or weak that it constantly fears engulfment by the other or abandonment by the other... The intrapsychic structure... is thus more complex... because it has accomplished more differentiation; but these differentiations are not integrated, leaving the borderline with a series of fractured structures or part-units. The borderline thus typically oscillates between an almost total or chameleon-like compliance with others, which makes him/her feel 'good,' 'accepted,' or 'safe,' and a withdrawn and sullen distancing from others, who -- now experienced as angry, vengeful, and denouncing -- make him/her feel rotten, a worm, totally worthless, despicably bad (and occasionally suicidal)." (pp. 110-111)

3a. Fulcrum: Borderline Neuroses. "[T]hese conditions are either neurotic developments burdened with separation-individuation sub phase deficiencies, or a part-regression to more borderline states in the face of too difficult neurotic-oedipal developments." (p. 111)

3b. Fulcrum: Psychoneuroses. The triadic nature of this stage is where "the conceptual rep-mind has emerged and (ideally) differentiated from the libidinal body. The central self is now identified with, and exists as, a symbolic-conceptual structure, namely, the rep-mind *ego*: no longer a phantasmic-libidinal self, but a conceptual-egoic self... [T]his overall process results in a *tripartite* structure of the... ego-superego-id... [M]ost conflict is intrapersonal (or intrapsychic)... superego vs. id (inhibition), id vs. ego (anxiety, obsession), superego vs. ego (guilt, depression)... [T]he self is on its climb up the basic structures of existence... The psychoneuroses stand at that great branch point where consciousness starts to move from a generally bodily existence to a generally mental existence..." (pp. 112-113)

23.6.3.2. THE PERSONAL PATHOLOGIES

"The conflicts are much more cognitive than psychodynamic in nature and origin, but can be just as debilitating and distressful. This whole range of cognitive, identity, and existential concerns, I call the 'intermediate' or 'personal realm.'" (p. 114)

Fulcrum 4: The Role Self and Cognitive-Script Pathology or Script Neuroses This involves the "...work of Transactional analysis on game theory and scripts and the communications theorists on role-taking...The preeminent defense mechanism of this stage is the 'duplicitous transaction' -- the individual overtly communicates one message...while covertly implying another...;if the covert message is pointed out, the individual strenuously denies it. The covert messages or hidden agendas are the key pathogenic structures in the Fulcrum 4 self; if extreme, they result in a interior splitting or dissociation of the text-self." (p. 115)

Fulcrum 5: Identity Neurosis. "'Identity neurosis' specifically means all the things that can go wrong in the emergence of the self-reflexive structure. Is it strong enough to break free of the rule/role mind and stand on its own principles of conscience? Can it, if necessary, summon the courage to march to the sound of a different drummer? Will it dare to think for itself?' This is Erikson's basic

'identity vs. role confusion' issue. "[P]hilosophical problems are an integral part of Fulcrum 5 development, and philosophical education [is] an integral and legitimate part of therapy on this level." (p. 116)

Fulcrum 6: Existential Pathology. "The common Existential Syndromes include:

1. *Existential depression* -- a global-diffuse depression or 'life-arrest' in the face of perceived meaninglessness.
2. *Inauthenticity* -- ...lack of profound awareness-acceptance of one's own finitude and mortality.
3. *Existential isolation and 'uncanniness'* -- a strong-enough self that nevertheless feels 'not at home' in the familiar world.
4. *Aborted self-actualization* -- Maslow (1971): 'I warn you, if you deliberately set out to be less than you are capable of becoming, you will be deeply unhappy for the rest of your life.'
5. *Existential anxiety* -- the threatened death of, or loss of, one's self-reflective modes of being-in-the-world (an anxiety that cannot occur prior to Fulcrums 5 and 6 because the vary capacity for formal-reflection does not occur until then)." (p. 118)

"...[E]xistential ennui has a specific and unmistakable 'flavor'; a strong and highly differentiated-integrated self-structure presents the symptom; it is a thoughtful, steady, concerned, profound depression; it has none of the 'whining' of the borderline or the guilt of the psychoneurotic; it looks unflinchingly at the cosmos and then, for whatever reasons, despairs of finding any personal meaning." (pp. 118-119)

23.6.3.3. THE TRANSPERSONAL PATHOLOGIES

Fulcrum 7: Psychic Disorders. These include "... all the 'lower level' spiritual crises and pathologies that may 1). awaken *spontaneously* in any relatively developed soul; 2).invade any of the lower levels of development during periods of severe stress...; and 3). beset the *beginning* practitioner of a contemplative discipline."

1. "The most dramatic psychic pathology occurs in the spontaneous and usually unsought awakening of spiritual-psychic energies or capacities..."
2. "One of the most puzzling aspects of transient schizophrenic breaks or psychotic-like episodes is that they often channel rather profound spiritual insights, but they do so through a self-structure that is neurotic, borderline, even frankly psychotic..."
3. "Beginning practitioner -- Psychic pathologies besetting the novitiate include:
 - a). "Psychic inflation -- The universal-transpersonal energies and insights of the psychic level are exclusively applied to the individual ego or centaur, with extremely unbalancing results (particularly if there are narcissistic sub phase residues in the self-structure)."
 - b). "Structural imbalance due to faulty practice of the spiritual technique -- This is particularly common in the paths of purification and purgation... It usually manifests in mild, free-floating-anxiety, or in psychosomatic conversion symptoms..."

- c). "The Dark Night of the Soul -- Once the soul obtains a direct taste or experience of the Divine...and that experience begins to fade (which it initially does), the soul may suffer profound abandonment depression..."
- d). "Split life-goals -- For example, 'Do I stay in the world or retreat to meditation?' This can be extremely painful and psychologically paralyzing... one form of a profound splitting between upper and lower self-needs..."
- e). "'Pseudo-duhkha' -- In certain paths of meditation (e.g., Vipassana), where investigation into the very nature of the phenomena of consciousness is stressed, the early phase of awareness training... brings a growing realization of the painful nature of manifest existence itself. Where this realization becomes overwhelming... we speak of 'pseudo-duhkha.' Pseudo-duhkha is often the result of residual existential, psychoneurotic, or, more often, residual borderline contamination of the psychic fulcrum of development. The individual does not gain an understanding of the sources of life; [they] simply go sour on life..."
- f). "Pranic disorders -- This refers to a misdirection of Kundalini energy in the early stages of its arousal. Various psychic (pranic) channels are over- or under-developed, crossed, or prematurely opened... Pranic disorders are usually caused by improper visualization and concentration... Dramatic psychosomatic symptoms are usually prevalent, including barely controllable muscle spasms, violent headache, breathing difficulty, etc."
- g). "'Yogic illness' -- This disorder... results when the development of the higher or psychic levels of consciousness puts an undue strain on the physical-emotional body. The great intensity of psychic and subtle energies, can, as it were overload the 'lower circuits,' resulting... in everything from allergies to intestinal problems to heart disorders." (p. 120-122)

Fulcrum 8: Subtle Disorders. "The two vulnerable points ...concern: 1). the differentiation-separation-transcendence of the previous mental-psychic dimension, and 2). the identification-integration-consolidation of the subtle-archetypal self and its object relations. Apparently, this pathology occurs most often in intermediate-to-advanced meditators. Some of its many forms:"

a). Integration-Identification Failure -- "...Archetypal Presence or Awareness is first apprehended...'above and behind' mental-psychic consciousness. Eventually, as contemplation deepens, the self differentiates from its psychic moorings and ascends to the intuited identification with that... Archetypal Presence or Awareness ...This Identity arises concomitantly with a stable *witnessing* of the object relations of subtle consciousness ...A failure to realize this Prior Identity-Awareness, after the practitioner is in fact structurally capable of it, is the central defining pathology of these syndromes, because it constitutes, at that point, a fracture between self and Archetype...This fracture arises for one basic reason: to identify with and as Archetypal Presence or Awareness demands the *death* of the mental-psychic self. Rather than suffer this humiliation, the self *contracts* on its own separate being, thus fracturing the higher and prior archetypal identity. *Fragments* of Archetypal Presence then appear as objects of a still dualistic awareness, instead of whole Archetypal Presence acting as prior and intuited Subject of transcendental consciousness. In other words, instead of *being* Archetypal Awareness (as a subject), the self, in meditation, merely stares at fragments of it (as objects). Consolidation is not reached." (pp. 122-123)

b). Pseudo-nirvana -- "This is simply the mistaking of subtle or archetypal forms, illuminations, raptures, ecstasies, insights, or absorptions for final liberation." (p. 123)

c). Pseudo-realization -- "As Vipassana meditation proceeds into the subtle levels of awareness, a stage of insight called 'realization' arises (beyond which lies 'effortless insight,' the highest of the subtle-level developments)... [T]his is not a pathology of this stage, but is normalcy at this stage, which involves an intense insight into the ultimately unsatisfactory nature of phenomena when viewed apart from noumenon. The intense pain and revulsion acts as the motivation to transcend all conceivable manifestation in nirvanic absorption. The pseudo-realization pathology occurs when that process fails to quicken and the soul is stranded on the shores of its own agony." (p. 124)

Fulcrum 9: Causal Disorders. "The last major fulcrum of self-development has, for its two branches;... the Formless or Unmanifest and the entire world of Form, or the Manifest Realm. Normal development involves their proper differentiation (in the causal) and their final integration (in the ultimate). Pathology, on the other hand, results from miscarriages in either of these two crucial movements."

a). Failure of Differentiation -- "an inability to accept the final death of the archetypal self (which is simply the subtlest level of the separate-self sense) locks consciousness into an attachment to some aspect of the manifest realm. The Great Death never occurs, and thus Formless Consciousness fails to differentiate from or transcend the manifest realm... the final block: desire for liberation." (pp. 124-125)

b). Failure to Integrate, or Arhat's Disease -- "[A] subtle disjuncture, dualism, or tension now exists in consciousness, namely, between the manifest and the unmanifest realms. Only as this disjuncture is penetrated does the manifest realm arise as a modification of Consciousness, not a distraction from it." (p. 125)

23.6.4. TREATMENT MODALITIES

The following is taken from Wilber, Engler and Brown, (1986)

Section 23.6.4 describes the types of possible treatment modalities or therapeutic interventions that seem most appropriate for each of these classes of pathology.

See Table 23.1. and Figure 23.8. for the overview.

Fulcrum 1: (Psychoses) Physiological Intervention.

"These disturbances seem to occur on such a primitive level of organization (sensoriperceptual and physiological) that only intervention at an *equally primitive level* is effective -- namely -- pharmacological or physiological (which does not rule out psychotherapy as an adjunct treatment)." (pp. 127-128)

Fulcrum 2 (Narcissistic-Borderline Disorders): Structure-Building Techniques.

"A common feature of the structure-building techniques [used at this level] is to help clients realize that they can *activate themselves*, or *engage separation-individuation*, and it will not destroy them or the ones they love." (p. 130)

"The central problem in the narcissistic and borderline syndromes is not that the individual is repressing certain impulses or emotions of the self, but that [they do] not yet possess a separated-individuated self in the first place... All the various thoughts and emotions are present and largely conscious, but there is considerable confusion as to *whom* these belong to -- there is...a fusion, confusion, or splitting of the self and object representations. The self is not yet strong enough or structured enough to 'push' contents into the unconscious, and so instead simply rearranges the surface furniture. The boundaries between self and other are either blurred (narcissism) or very tenuous (borderline), and the self shuffles its feelings and thoughts indiscriminately between self and other, or groups all its good feelings on one subject (the 'all-good part-object') and all its bad feelings on another (the 'all-bad part-object')... [T]he aim of therapy on this level is... to build structure.." (p. 128)

"[S]tructure-building techniques' help the individual re-engage and complete the separation-individuation process. That involves an understanding (and undermining) of the two central defenses that the individual uses to prevent separation-individuation from occurring: *projective identification* (or fusion of self and object representations) and *splitting*. In *projective identification* (or merger defense), the self fuses its own thoughts and feelings (and particularly self-representations) with those of the other... This inability to differentiate self and other leads to the self engulfing the world (narcissistic disorders) or the world invading and threatening to engulf the self (borderline disorders). In *splitting*, the particular thoughts and feelings also remain conscious, but they are divided up or compartmentalized in a rather primitive fashion." (pp. 128-129)

"In short, [these] pathologies result because there is not enough structure to differentiate self and object representations, and to integrate their part-images into a whole-self image and a whole-object world. The structure-building techniques aim at exactly that differentiation-and-integration." (pp. 129-130)

Fulcrum 3: (Psychoneuroses): Uncovering Techniques.

"Once a strong-enough self-structure has formed (but not before), it can repress, dissociate, or alienate aspects of its own being. The uncovering techniques are designed specifically to bring these unconscious aspects back into awareness, where they can be re-integrated with the central self... [T]hese techniques... include psychoanalysis proper, much of Gestalt therapy, and the integrating-the-shadow aspect of Jungian therapy." (pp. 130-131)

"Cognitive-script therapy has significant applications in the Fulcrums 4, 5 and 6 but Fulcrum 4 "is the first major stage in which cognitive-script concerns fully develop and begin to differentiate themselves from the more psychodynamic concerns of the previous fulcrums... [M]any of the cognitive-script pathologies seem to have their genesis in the early (and possibly distorted or limited) rules and roles one learned when the mind *first* became capable of extended mental operations." (p. 133)

Fulcrum 4: (Script Pathology): Cognitive-Script analysis.

At this level we "...look at higher or post oedipal stages of development and their correlative vulnerabilities and dis-eases... The capacity for genuine role taking is a decisively post oedipal development" (p. 131)

"We are dealing with different levels... of development, with different conflicts and vulnerabilities. *These conflicts are much more cognitive than psychodynamic in nature and origin*, because at this point the self increasingly is evolving from bodily to mental levels of the spectrum [of consciousness]. Eric Berne (Transactional Analysis) investigated this level--..."the text self or script self--on its own terms, without reducing it to merely psycho-neurotic or libidinal dimensions." (p. 132) "Cognitive-script analysis" refers to activities carried out by cognitive role theorists, social learning theorists, family therapists and communications psychologists."

a). Role Pathology --

"This has been typically investigated by Transactional Analysis, family therapists, and cognitive-role psychologists. The individual involved in role pathology is sending multi-level communicative messages, one level of which denies, contradicts, or circumvents another level. The individual thus possess all sorts of hidden agendas, crossed messages, confused roles, duplicitous transactions, and so on. It is the job of the script analyst to help separate, untangle, clarify, and integrate the various communicative strands involved in role-self pathology. The interior splitting of the text-self into overt vs. covert communicative engagements (or into dissociated sub-texts) is thus confronted, interpreted, and, if successful, integrated (a new and higher level of differentiation-integration)." (pp. 132-133)

b). Rule Pathology --

"One of the central tenets of cognitive therapy is that 'an individual's affect and behavior are largely determined by the way in which he structures the world.' and therefore 'alternations in the content of the person's underlying cognitive structures affect his or her affective state and behavioral pattern'. In other words, an individual's cognitive schemas, configurations, or rules are a major determinant of his or her feelings and actions. Confused, distorted, or self-limiting rules and beliefs can be manifest in clinical symptoms; conversely, 'through psychological therapy a patient can become aware of his distortions,' and 'corrections of these faulty dysfunctional constructs can lead to clinical improvement.'" (Aaron Beck, David Burns, George Kelley and Albert Ellis) (p. 133)

Fulcrum 5: (Identity Neurosis): Introspection. The formal-reflexive-introspective self and its turmoils.

"[T]he central and defining problems of Fulcrum 5 development involve... the *emergence* and *engagement* of the formal-reflexive mind and its correlative, introspective self-sense (with its particular vulnerabilities and distresses). No amount of uncovering techniques or script analysis will suffice to handle these problems, precisely because these problems involve structures that transcend those of lower levels of organization and thus present entirely new features, functions, and pathologies of their own." (p. 135)

Introspection and philosophizing seems to be the treatment modality of this level. "If the client is clearly in the introspective (not interpretive) modality, there is nothing to be lost, and much to be gained, by the therapist taking a more active role, becoming, in a sense, a co-educator or co-philosopher... [T]he therapist can engage the client in a *Socratic dialogue* which engages, simultaneously, the client's formal-reflexive mind (if, in this dialogue, lower-level residues surface,

the therapist can revert to interpretation, structure-building, script analysis etc.). As with any Socratic dialogue, the particular content is not as important as the fact that it engages, activates, draws out, and exercises the client's reflexive-introspective mind and its correlative self-sense." (pp. 135-136)

Fulcrum 6: (Existential Pathology): Existential Therapy.

"As introspection and philosophizing are engaged and matured, the basic, fundamental, or existential concerns of being-in-the-world come increasingly to the fore... Existential pathology occurs if these concerns begin to overwhelm the newly formed centauric self and freeze its functioning. These pathologies include... existential depression, angst, inauthenticity, and flight from finitude and death, etc." (p. 136)

"[A] central therapeutic commonality seems to be... the *clearer* or more transparent the self becomes (via concerned reflection), or the more it can empty itself of egocentric, power-based, or inauthentic modes, the more it comes to an *autonomous* or *authentic* stance or grounding... [I]t is this *grounding* in authenticity and autonomy that itself provides existential meaning in life, that combats dread and angst, and that provides a courage to be in the face of 'sickness unto death'. Authentic being... carries intrinsic (not extrinsic) meaning; it is precisely the search for extrinsic or merely external meaning that constitutes inauthenticity (and thus existential despair). Analysis of, and confrontation of, one's various inauthentic modes... seems to be the key therapeutic technique on this level." (pp. 136-137)

"These concepts of intrinsic meaning (or a new and higher level of interiorization) and the engagement of autonomy (or a new and higher level of self responsibility) seem to be the two central features emphasized by all genuine schools of humanistic-existential therapy... [T]he self is an opening to Being, but that opening is strictly finite, individual and mortal... [T]here is nothing timeless or eternal about the centauric self, and an acceptance of that fact is part of the very definition of authenticity." (p. 137)

"[A]t this point a denial of the possibility of spiritual transcendence would constitute a preeminent defense mechanism... [A]utonomy is simply a higher interiorization of consciousness...; if this interiorization continues, it easily discloses psychic and subtle developments. The self is then no longer an opening to Being; it starts to identify with, and is, Being itself." (p. 137)

Fulcrum 7: (Psychic Pathology): The Path of Yogis.

"[T]he world's great esoteric traditions [can be divided] into three major levels: the Path of Yogis [beginning or ground], which predominantly aims for the psychic level; the Path of Saints [intermediate or path], which predominantly aims for the subtle level; and the Path of Sages [advanced or fruition], which predominantly aims for the causal." (p. 138)

"[C]ontemplative development in general possesses three broad levels or stages (beginning, intermediate, and advanced); ..different tasks and capacities emerge at each level;... different distortions, pathologies, or disorders may therefore occur at each level; and... these distortions or pathologies may best be treated by different types of 'spiritual' therapy (some of which may also benefit from adjunct conventional therapies)." (p. 138)

1). *Spontaneous* --

"For pathology resulting from spontaneous and unsought awakening of spiritual-psychic energies or insights, there seem to be only two general treatment modalities: the individual must either 'ride it out,' sometimes under the care of a conventional [therapist] who may interpret it as a borderline or psychotic break and prescribe medication, which often freezes the process in midcourse and prevents any further reparative developments; or the individual can *consciously* engage this process by taking up a contemplative discipline." (pp. 138-139)

2). *Psychotic-like* --

"For genuinely psychotic or psychotic-like episodes with periodic but distorted spiritual components, Jungian therapy may be suggested... A contemplative discipline... is usually contraindicated; these disciplines demand a sturdy ego or centaur-level [body-mind integrated] of self, which the psychotic or borderline does not possess." (p. 139)

3) *Beginning Practitioner:*

a). *Psychic inflation* --

"This confusion of higher or transpersonal realms with the individual ego or centaur can often be handled with a subtler version of 'optimal disillusionment,' a continual separation of psychic fact from narcissistic fantasies. If this repeatedly fails, it is usually because a psychic insight has reactivated a narcissistic-borderline or even psychotic residue. At that point, meditation should usually be stopped immediately and, if necessary, structure-building engaged." (p. 140)

b). *Structural imbalance* (due to faulty practice of the spiritual technique) --

"The individual should verify this with the meditation teacher; these imbalances... point up how extremely important it is to undertake contemplative disciplines only under the guidance of a qualified master." (p. 140)

c). *Dark Night of the Soul* --

"Reading accounts of how others have weathered this phase can be very helpful... In periods of profound despair, the soul may break into petitionary, as opposed to contemplative, prayer;... this need not be discouraged -- it is prayer to one's own higher Archetype..[In] the depression or agony of the Dark Night, [there are] virtually no cases of its leading to suicide (in sharp contrast to existential or borderline depressions...) It is as if the depression of the Dark Night had a 'higher' or 'purgatorial' or 'intelligent' purpose..."(p. 140)p

d). *Split-life goals* --

"It is important... that one's spiritual practice be integrated into daily life and work (as a bodhisattvic endeavor)." (p. 1400)

e). *Pseudo-duhkha* --

"Spiritual teachers generally have no knowledge of the dynamics of borderline or psychoneurotic disorders... In most cases, the meditator should cease all meditation for a few months. If moderate-to-severe depression/anxiety persists, a borderline or psychoneurotic [unresolved experience] might have been reactivated... and appropriate structure-building or uncovering therapies might be engaged." (pp. 140-141)

f). *Pranic disorders* --

"These disorders are notorious for inducing hysterical-like conversion symptoms which, if left untreated, may induce genuine psychosomatic disease... They are best handled in conjunction with the yogic meditation teacher." (p. 141)

g). *Yogic illness* --

"The best 'cure' is also the best prevention; strengthening and purifying the physical-emotional body..."(p. 141)

Fulcrum 8: (Subtle Pathology): The Path of Saints.

1). *Integration-Identification Failure* --

The treatment modality for this pathology is to "engage (or intensify) the path of subtle-level contemplation (the Path of Saints), which, at this point, usually *begins* to involve some form of *inquiry*,... into the *contraction* that constitutes the separate-self sense. It is said to be an actual *seeing* of that contraction, which is blocking subtle or archetypal awareness, and *not* a direct attempt to identify with archetypal awareness itself, that constitutes the therapeutic treatment for this particular disorder..." (p. 141)

"[I]f this contraction or subtle-level resistance is not relaxed to a sufficient degree... the consolidation and stabilization of the archetypal self will not be achieved, and the individual may then be inundated and overwhelmed by the tremendously powerful energies and dynamics released in the subtle realm." (p. 142)

"The common treatment modality...include[s] *seeing* and then *understanding*... the subtle contraction or resistance to a larger archetypal awareness, a contraction that at bottom involves an inability to accept the death of the previous (or mental/psychic) self-sense and its attachments and desires..." (p. 142)

"[I]t is at this point... that one begins to encounter and understand the 'deep-seated defilements... that not only obscure the next and higher stage of formless or unmanifest awareness, but ultimately give rise to all forms of human suffering and pathology, high or low." (p. 142)

2). *Pseudo-nirvana* --

"This mistaking of subtle illuminations and archetypal forms for ultimate enlightenment can only be handled by moving beyond the luminous forms to unmanifest or formless cessation... [C]hecking routines' [can] help the practitioner review the ecstatic, luminous, blissful, and 'tempting' subtle experiences and thus eventually gain a distancing or nonattached stance towards this archetypal level..." (p. 142)

3). *Pseudo-realization* --

"[T]here is usually no cure for pseudo-realization except more meditation. The only thing more painful than continuing meditation is failing to continue meditation." (p. 143)

Fulcrum 9: (Causal Pathology): The Path of Sages.

1). *Failure to Differentiate* --

"[T]his final differentiation or detachment (i.e., from all manifest form) involves a subtle but momentous collaboration on the part of the student and the teacher... described as follows: The teacher... resides within the 'Heart' (or causal/unmanifest realm) of the student, and exerts a special 'pull'; the student, in the final and root form of the separate-self sense (the archetypal self), is still standing in a subtly contracted form 'outside' the Heart (i.e., resisting the final and total dissolution of the separate-self sense). The student and teacher 'together,' through an 'effortless effort,' release this stance, and the separate-self 'falls' into the Heart. This 'fall' into formless, unmanifest cessation or emptiness breaks all exclusive attachment to manifest forms and destinies, and Consciousness as Such (or Absolute Subjectivity) differentiates itself from all objects... and from all archetypal tendencies or root contractions... Repetition of this 'fall' -- or repeated 'movement' from manifest to unmanifest and back again -- 'burns' the root inclinations and desires for contracted and separated modes of self existence. This fall is the 'entrance' to the stages of enlightenment,," (pp. 143-144)

2). *Failure to Integrate* --

"This 'ultimate pathology' (a failure to integrate the manifest and unmanifest realms) results when the root ... (archetypal forms and inclinations) are seen only as defilements and not also as the means of expression or manifestation of unobstructed Wisdom (absolute Spirit or Being). The overcoming of this disjunction and the re-union or re-integration of emptiness-form and wisdom are the 'supreme path'... where all phenomena, high or low, exactly as they find themselves, are seen as already perfect expressions and seals of the naturally enlightened mind." (p. 144)

24. THE RANGE OF REALITY: MULTIDIMENSIONAL HUMAN EXISTENCE AND ITS MANY ENERGY/INFORMATION LAYERS

Below, I provide my attempt at picturing how it all relates and where the energy/information technologies fit in. I see them as providing a bridge between the every day life of most people and the higher levels of existence. Since the techniques provide dramatic and rapid relief from "the slings and arrows of outrageous fortune," they have great potential for starting the average individual on a more spiritual life path. The integration of Energy/Information Psychology, Eden's

Energy Medicine, and HeartMath is accomplished in my Radiant Energies Balance (REB) protocol for the Autonomic Nervous System by balancing the Triple Warmer, Spleen, Central and Governing meridians. These meridians all have dual functions of meridians and Radiant Circuits. [Eden and Feinstein (2000b)]

Figure 24.1 HOW IT ALL RELATES and WHERE THE RADIANT ENERGIES BALANCEsm PROTOCOL FITS IN as a BRIDGE BETWEEN EVERY DAY LIFE and the HIGHER (MORE SPIRITUAL) LEVELS of EXISTENCE

Subtle/Vacuum Energy & Active Information, The Universal Information Source
(?Bohm's Implicate Order; Puthoff's Zero Point Field. Tiller's 10 dimensions?)
(?Ground of All Being. Spirit. "Non Dual Relam"?)
Various aspects roughly ranked from most to least subtle

BODY ENERGY LAYERS

Causal Body
Mental Body
Astral Body
Etheric Body
Physical Body

**PHYSICAL BODY'S SUBTLE ENERGY/INFORMATION SYSTEM
(Energy Psychology provides the connection to the non-physical realms)**

Energy Centers (Chakras)

Energy Channels (Meridians, Nadis)

RADIANT CIRCUITS ARE "HYPER LINKS" TO ALL OF THE BODY'S ENERGY SYSTEM

QUANTUM HOLOGRAPHY and COHERENCE, "ORCHESTRATED OBJECTIVE REDUCTION" (Orch OR") THEORY OF CONSCIOUSNESS, MICROWAVE RESONANCE THERAPY (MRT) and ACUPUNCTURE, QUANTUM HOLOGRAPHIC POLYPHASIC LIQUID CRYSTALLINE BODY

MICROTUBULES and ASSEMBLING GAP JUNCTIONS HEMICHANNELS

Electromagnetic physical information processing (Glia and Schwann Cells and Becker's "Parallel Nervous System" model). Connects to environmental electromagnetic influences (earth, machines)

THE INTELLIGENCE AND WISDOM OF THE HEART (HeartMath)

The major electro-magnetic bio-oscillator and driver of the whole BodyMind system and a ruler of the

AUTONOMIC NERVOUS SYSTEM (SYMPATHETIC and PARASYMPATHETIC BRANCHES)

(Radiant Energies Balancesm using the Radiant Circuits)

Ions and ion exchange/nerve impulses (neurons)
Chemical and biochemical matter (proteins, hormones, neurotransmitters, etc.)
Structural matter (organs, bones, skin, nerves, etc.)

25. SUMMARY OF SOME OF THE BALANCEsm PROTOCOL ASSUMPTIONS AND AN ESTIMATE OF THE DEGREE OF EVIDENTIAL SUPPORT FOR THEM
(high, medium, low ala D. Benor's method of evaluation of research support)

1. An unbalanced and inflexible ANS underlies many psychophysical problems (high).
2. HRV measures provide an unobtrusive way to assess the ANS level of functioning (high).
3. Eye blinking rate reflects stress (high) and helps reduce this stress (medium -- some clinical).
4. Deep breathing and breathing through the nose reduces stress and balances the ANS (high).
5. Eye positions, eye movements, head positions and movements tap into various aspects of information processing and hidden aspects of clinical disorders (medium).
6. Movement, rocking, and squeezing during the protocol involves the information processing capacities of the cerebellum and facilitates the integration process (high).
7. The alternate cross lateral squeezing functions as an EMDR modality, facilitating the information processing and integration processes (medium).
8. Correcting the energy imbalances around any problem provides corrections on a more basic level than conventional drug/chemical, conditioning, or cognitive behavioural protocols (medium -- some clinical).
9. Unbalanced radiant circuits underlie many psychophysical problems (medium -- some clinical).
10. The triple warmer and spleen meridians/radiant circuits are the energetic substrate for the ANS (low -- this is the needed area of research on the balancing protocol using HRV as the principal dependent variable).
11. When a problem is "tuned into" with an intention to correct the problem, the balance posture will provide an overall balance and correction for any disruptions of the body's energy system for the problem (low -- some clinical and intuitive).
12. Related to 11 above, engaging the balance posture automatically handles any psycho-energetic reversals on the issue (low -- intuitive and needs clinical research).
13. Related to 11 above, engaging the balance posture automatically makes most other psychotherapy protocol more efficient and powerful (low -- some clinical and intuitive).
14. The radiant circuits serve as "hyper links" to the body's energy system which makes the need for sophisticated diagnosis and reversal corrections unnecessary. (low -- some clinical and intuitive).
15. The radiant circuits channel "spiritual" type chi (yaun chi) which will facilitate any program of systematic practice to develop higher states of consciousness and may even be sufficient for this purpose. (low - traditional Chinese philosophy).