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BODY AWARENESS IN THEORY AND PRACTICE

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“Attention, Attention ... Here and now, boys; here and now ...,”
the mynah birds call in the forest of Aldous Huxley’s utopia, *Island*. (1)

ATTENTION (AWARENESS) SEEMS CRUCIAL to the process of improving one’s body use. Students of the Alexander Technique and other forms of posture-movement education (2) need to listen for the mynah birds often: “Attention ... Awareness ... here and now; here and now.”

In my book, *Back Pain Solutions: How to Help Yourself with Posture-Movement Therapy and Education*, I have formulated four general rules of ‘mindful’ body mechanics. (3) These rules, further elaborated in the book, provide flexible guidelines for people to apply as they work on improving their use. In this article, I’ll discuss the first guideline: *Make body awareness a daily practice*.

* Adapted from Bruce Kodish’s book *Back Pain Solutions: How to Help Yourself with Posture-Movement Therapy and Education*, © Extensional Publishing, all rights reserved. Bruce I. Kodish, Ph.D., P.T., practices physical therapy and teaches the Alexander Technique in Pasadena, California. Co-author of *Drive Yourself Sane: Using the Uncommon Sense of General Semantics* and author of *Dare to Inquire: Sanity and Survival for the 21st Century and Beyond*, Bruce Kodish serves on the editorial and teaching staffs of the Institute of General Semantics.

The Limits of Awareness

Practicing body awareness may not seem easy at times. We all have a certain amount of psychological inertia. We tend to move in the well-worn grooves of what we give our habitual attention to and what we ignore. We often function in a limited state of awareness that psychologist Ellen Langer calls “mindlessness.” (4)

In such a state, our attention runs more or less on automatic and our behavior seems less-than-optimally sensitive to the conditions surrounding us and inside of us. At such times, our experience may seem like something that happens to us, not something that we have an opportunity to shape as we like.

On the other hand, we also can function at times with a less automatic, more alert state of awareness in which we are more open to what is going on around and in us, i.e., Langer’s “mindfulness.”

At such times, we can look at things from more than one perspective. Novelty and the present context become important. We are open to new information. What we attend to becomes more something we do and less something that happens to us.

The difference between this alert state of awareness and the more automatic state of attention noted above may be a matter of need, interest, or skill, among other factors.

Someone who likes melons and knows a lot about produce may go to a food store with melon on his list, look at the different melons, sniff and poke one and then another until he finds one that seems just right. Someone else, with less interest and knowledge and more distractions may go to get a melon and put the first one he comes to into his basket. When asked why he picked that one he may say, “A melon is a melon.”

I have been describing relative states perhaps on opposite ends of a continuum of consciousness. Indeed, a certain amount of automatism seems like a necessary feature of our cognitive landscape.

As a mapping system, the brain cannot include in our awareness all of the information that it processes. Our awareness, as Alfred Korzybski pointed out, is necessarily an abstracting process — as the brain/nervous system selects some experiences to attend to, it filters out other aspects. (5) We often use repetitive patterns. We can thus save time and energy by putting our information abstracting equipment on automatic.

In this way our habits free us from having to focus our limited attention on repetitive tasks and concerns. However, we need the ability to go beyond our habits, to extend the limits of our awareness. Otherwise we can lose our ability

to respond effectively to new and different situations that arise. Instead of serving us, our habits can become our masters.

Experience and Words

In order to improve your posture-movement habits, you need to become more mindful of what you do and how you do it (your tensions, body posture, etc.). This will require that you bring yourself out of the automatic mode of awareness more often.

One important distinction to remember when doing this is the difference between the world of non-verbal experience and the world of words. (6)

Try this experiment: Pinch your ear lobe! Do it now. Now keep pinching it and say, "I'm pinching my earlobe." Now stop pinching your ear lobe and say "I'm pinching my ear lobe." (You will not get any benefit from this if you don't actually do it. Words will not suffice.)

This experiment illustrates that the territory of the non-verbal experience of the pinch is not the same as the word-maps you may use to talk about it. Whatever you say about your experience, for example "ouch" or "it hurts," is *not* it.

Nonetheless, in various ways, your habitual beliefs, embodied in your way of talking about your experience, can direct what you do and thereby experience ongoingly. This happens through a circular feedback process of perceptual control. (7) How you talk about things will set the internal standards or reference levels that will determine what perceptions you may control. In this way, your habitual mode of awareness can be perpetuated by what you say to yourself.

Simply having an awareness of this can make a difference in what and how you experience. You can discover more accurate, more useful ways of talking to yourself about yourself and what you experience, including your experience of pain.

For example, I once taught at a general-semantics seminar held on a college campus. My wife and I were staying in a room in the college dormitory, near the designated women's bathroom. The men's room was a long way down the hallway in the opposite wing of the dormitory. I woke up in the middle of the night with a full bladder. Trudging out to the hall, I looked around and briefly contemplated using the women's room but decided to "do the right thing" and began the long trek to the men's room. The trip started out with a sense of urgency that wasn't helped by my telling myself, "Oh boy, this is awful. I don't know if I can hold it... oohh, it's uncomfortable...it's such a long way down the hall." However, having gotten in the habit of listening to myself and know-

ing that what I said to myself could make a difference in what I experienced, I began a different kind of self-talk. "My muscles work very well to hold things. What wonderful control. I can make it to the bathroom. I'd prefer not having to walk so far, but it's not so bad." Let me tell you, I felt very proud of my self-talk that night.

As general semanticist and psychologist Wendell Johnson noted years ago, your most enchanted listener remains yourself. What you say to yourself can sometimes affect what you experience. Johnson illustrated the point with this light verse:

A rose with onion for its name
Might never, never smell the same —
And canny is the nose that knows
An onion that is called a rose. (8)

Sensory Awareness

Even though we live and experience our lives on what Korzybski called "the silent, unspeakable" non-verbal level of existence (9), it seems that we are endlessly talking to ourselves. As suggested in the last section, our self-talk can keep us stuck in habitual, unconscious, unhelpful patterns if it is based mostly on unquestioned verbal definitions. On the other hand, if we talk to ourselves in factual ways that keep us open to the possibilities of new experience, we can adapt better to what is happening within and around us.

Eventually, a large part of living in this fact-based, experiential way (what general semanticists call an "extensional orientation") involves not just learning how to talk differently to ourselves but also how to turn down the volume of the words inside our heads. This means practice at looking, listening, tasting, feeling, etc., at the silent, unspeakable level. Turning down the volume of our internal chatter gives us more of a chance to receive new signals and thus to learn new things about the world and ourselves. Not only can this make us more adaptable to changing circumstances; it can also make life more fun.

An approach to living that offers suggestions for doing this is the educational practice known as "Sensory Awareness" formulated by Charlotte Selver. Selver studied with Elsa Gindler, a physical education teacher in Germany, in the early part of the twentieth century. (10)

Gindler had no effective medical treatment available when she contracted tuberculosis. She had little money and could not afford going to a sanatorium, which at the time, before the advent of effective antibiotic treatment, was where such patients went in order to improve their chances of survival. She did, how-

ever, have some hope that by observing herself, how she breathed and moved, she might at least not interfere with whatever capacity her system had to fight the infection.

She found that when she could get out of her own way, remain present here and now, and keep her attention on the actual processes of breathing and moving, she could function more easily.

Some time later, when she encountered her doctor in the street, he seemed surprised at her appearance of good health. Indeed Gindler lived for many more years and taught others, including Selver, her unique form of psycho-physical education.

Sensory Awareness work (which I studied with Charlotte Schuchardt Read, a student of Selver) uses questions and experiments to direct your attention non-verbally to what is going on in and around you. In this way, you can learn to stay more in the present as you sense your organism-as-a-whole-in-an-environment connections.

I would like to give you a taste of a sensory awareness experiment right now. As you read the following, allow yourself time to observe and respond:

- What are you doing right now, non-verbally?
- How can you allow yourself to feel the support of what holds you up?
- How much do you need to hold yourself up?
- Where do you feel unnecessary tensions?
- Do you feel tension in your jaw?
- Do you feel tension in your face?
- Where do you feel ease?
- How clearly can you feel yourself breathing?

Remember that directing your attention in this way takes time. When you focus unnecessarily on labeling and explaining, you may miss something important going on in and around you.

Listen to whatever sounds come to you right now ... Do you find yourself labeling what you hear? Listen again and this time, if you begin to label sounds, just notice that you are doing it and come back to the sounds again

Touch the cloth of your clothes. Notice the sensations in your fingers, your hands. Allow the sensations to travel where they will. Move to a different part of your clothes. Notice any different sensations.

Choose something to look at. Without words, take in what comes to your eyes. Continue looking; what else comes to you?

Get up and walk around. Sense the movement of your feet and legs, the movement of your arms, the shifts of your torso.

Consider the sounds, sights, and aromas around you as structures to explore. Pick an object, such as a stone or a pencil. Examine it closely, silently for several minutes. Use 'all' of your senses: see, hear, touch, taste, move, etc. How well can you do this without labeling or describing?

You may find that you quickly fall into speech, perhaps talking to yourself about something else. Perhaps you scold yourself for not performing the task 'correctly.' You may also find yourself congratulating yourself verbally for remaining on the non-verbal level. If you find yourself doing these things, just notice it and go on. With practice, you'll find it easier to stay focused on the non-verbal level.

You may have noticed that I used the word "allow" in some of my instructions for non-verbal awareness. Part of doing this work involves allowing yourself to experience whatever you experience at the moment, accepting what you find.

People who work with me sometimes object that they want to change, not accept themselves as they presently function. However, as Gindler discovered, I find that people benefit from allowing themselves to experience whatever occurs. That doesn't mean you have to like what you experience. Nonetheless, positive changes can occur more easily when you're not denying or fighting what you experience. To control what you want to control, you have to experience it first.

My dear friend and teacher Charlotte Schuchardt Read expressed this attitude beautifully in an interview on her sensory awareness work:

This involves getting in touch with ourselves, and accepting what goes on. It's so important, I feel, to accept — not to criticize — ourselves, as in: "Oh! I shouldn't do this! I shouldn't do that!" But to accept what goes on. We all have built up habits over the years and we all could function a little better than we do. But to allow what we feel is needed — this is a big thing, you know. It really is so fundamental, at least in my view. Do we need more air? Do we need more keen observation? Do we need more silence? Oh, that's another important aspect of it, isn't it? To be able to be quiet. (11)

For example, I have used this approach for foot and leg cramps. I find that when I allow myself to focus on the sensations, noticing with interest (and

varying degrees of difficulty) *how* the 'pain' feels, *how* the muscles twist ... the cramp often disappears.

The Wedge of Awareness

Perhaps in reading this you have become a little more aware of your awareness. Your nervous system gives you the power to do this — the power of self-reflexiveness. Self-reflexiveness allows you actively to bring awareness to what was previously out of awareness. Below, I will show you how to apply the *Wedge of Awareness*, developed by general-semantics teacher Milton Dawes, to make practical use of this self-reflexive ability in order to improve your body awareness and posture-movement habits. (12)

Self-reflexiveness refers to the fact that you can make a map of a map. You can make a statement about a statement. This self-reflexive characteristic of our language reflects the underlying self-reflexive characteristic of our nervous systems, the ability to be conscious of our consciousness.

Whenever you find that an experience has stopped you short, you have made use of this self-reflexive capacity. For example, you've probably at some time in your life made a mis-step going down stairs because you 'thought' that there was another step to go down when there wasn't. Until the mis-step happened, you weren't aware that you had assumed that there was another step. This "oops" moment gave you a bit of unintentional awareness. You became aware of your level of awareness.

This kind of moment can begin to bring an aspect of choice into where you give your attention. It can lead to the practice of *intentional awareness*. Imagine yourself in the dark in an unfamiliar house, unable to find the light switch and having to go down some stairs. At such a time, as you carefully feel your way step by step, you may experience the kind of active, alert awareness that I refer to here. With intentional awareness, you make a deliberate decision to experience something specific and your attention is very much alive, awake and alert.

A wedge shape seems like an especially good symbol for such a moment of awareness. A wedge, like the kind that holds a door open, has a small edge through which it initially acts. This tiny tip gives it an effective point of action that allows the wedge to fit between the door and the floor. Another example of a wedge, an ax, has a very narrow cutting edge, which serves as its effective point of action. When you become aware of the automatic, 'mindless' aspects of your behavior, you give yourself a Wedge of Awareness (WOA), also called Wedge of Consciousness (WOC).

You deliberately can seek out such moments. For example, if you habitually wear your watch on one wrist as most people do, switch it to the other wrist and notice the effect. You'll probably find that you have many "oops" moments throughout the day.

You also can 'WOA' yourself when you bring some intentional wedges to your ongoing activities. By applying a 'thin wedge' of awareness to a task, you can set clear, doable goals, no matter how small, that can be done even in one brief moment, here and now.

Astronaut Story Musgrave, in an interview discussing his repair work on the Hubble Space Telescope 368 miles above the Earth, described how you can do this: "I have these little interrupts [WOAs] and they go off all the time. I'm doing a space walk, and the interrupts say, 'Look at the Earth, the sky, or inward. What are you feeling right now? Listen to your body.' It's an attempt to be a total participant, and at the same time getting the job done." (13)

Instead of this brief, incremental method of becoming 'mindful', i.e., changing habits, etc., we often do the opposite by 'applying the blunt side of the wedge' to our goals and to ourselves. You may set grand goals for yourself and attempt to change many things at once. For example, you may decide to practice sensory awareness twenty-four hours a day. This kind of approach seldom works.

In order to improve your posture-movement habits, you need to become more aware of what you do and how you do it. You will do best by starting modestly, taking brief moments, wedges, to observe yourself in action. You can practice sensory awareness by noticing one thing, one moment at a time.

As you become more aware of your body use, you will become more aware of other aspects of your life and the world around you. This works in reverse as well. Giving yourself time to pause and look at the scene around you or to sense how you're breathing, gives you a way of wedging yourself that will enhance your ability to move.

Interestingly enough, you will find that wedging yourself over time has a cumulative effect. Just as the size of a large area can be found by adding its small incremental parts, you may find that controlling small increments of your attention may add up to whole new habits of sensing and moving.

Stop right now and notice what you are doing. Give yourself a moment or two to answer each of these questions — not verbally but by noticing what you sense and feel:

- Where are you located in space?
- Where are you in relation to the corners of the room you're in?

- Are you sitting in a chair or on a couch?
- Can you feel what you are sitting on?
- Can you feel your feet on the floor?
- Are you sitting erect or slumping or somewhere in between?
- Are you holding your breath or are you letting your breath flow freely?
- What movements do you feel related to your breathing?
- Do you allow enough space for your breathing?
- Do you notice any tensions or pains at the moment?
- What would you need at this moment to feel more comfortable?
- How much of the length of your spine can you experience?

What kind of difference have these questions made in how you feel right now? You can wedge yourself by asking yourself these kinds of 'sense-able' questions. They will help you live more 'mindfully' as you observe and improve your habits of body mechanics and use.

You may even find it useful to get a small rubber or wooden wedge to place on your desk, work area or other place where you can see it often. Whenever you look at or handle the wedge you can remember to make and take a wedge of awareness.

Awareness, Inhibition and Direction

F. M. Alexander employed two dimensions of awareness that are important to remember as you work on improving your body mechanics and use. He called these dimensions "inhibition" and "direction" and they can easily be understood in terms of the wedge of awareness.

In his efforts to improve his posture-movement, Alexander discovered that when he decided to do something habitual like reciting a sentence, he found it difficult to prevent his old habits of misuse. If he immediately began to do the action, he tightened his neck, pulled his head back, etc. Initially he was not even aware that he was continuing with his old habits of tension and malposture.

At some point, watching himself in his mirrors, etc., he realized that, despite his best intentions, he was continuing to tense and shorten himself while speaking. At the moment that he became aware of this, he was functioning at the "oops" level of awareness.

He began to realize that, at the critical moment when he decided to speak, the habit of tensing, pulling his head back, etc., seemed to set off automatically unless he consciously decided to pause and delay his action. He called this process of intending to do something and then delaying or not doing it immediately, "inhibition."

Bringing even a momentary pause into the chain of decision-making provided what Alexander discovered to be a means of developing new and better habits of using himself in speaking and other activities. "Inhibition," in the way I am using it here, *does not* refer to repressing any aspect of your behavior. Rather, pausing briefly allows a wedge of awareness to enter a situation. Inhibition, in this sense, constitutes a 'negative' dimension of awareness.

"Direction" is the term used in the Alexander Technique to refer to a 'positive' dimension of awareness. A direction consists of an internal instruction that you give yourself in terms of a result you want to perceive. A direction can be given with words or images or just an internal desire to experience something in a certain way.

Alexander studied the conditions of better use in his own body. He came to understand that when he actually allowed his "neck to be free, to allow the head to go forward and up, to allow the back to lengthen and widen" the loss of voice that he had habitually experienced didn't happen.

While inhibiting his old response to the idea of speaking, he would project directions for better use by actually saying those words to himself. He found that the words, when their meanings had become clear through non-verbal exploration, pointed his awareness towards better use.

Alexander found that the process of giving directions worked best if he didn't try to *do* the directions. In other words, he found that he also had to inhibit any immediate action to carry out the directions. Instead, when he became aware of anything he was doing, say tightening his neck, that seemed incompatible with a particular direction, such as 'freeing the neck', he could simply stop doing the undesired action.

Inhibiting and directing can be considered as two sides of a wedge of awareness. Pausing (inhibiting) allows time for projecting (directing) a new pattern in place of automatic behavior. Conversely, when you give directions, such as "Let my neck be free" you automatically insert a pause into your habitual way of doing things. John Dewey called this combined awareness-inhibiting-directing, "thinking in activity."

The notion of the wedge of awareness has broad implications for all sorts of behavior besides body mechanics. Alexander and other thinkers, such as Feldenkrais, have suggested that our body use constitutes a 'pivot' of habit in general. It is an intriguing notion that focusing on body mechanics in this 'mind-

ful' way may provide a useful basis for developing the skill of thinking in activity in other areas of life.

Learning how to apply the wedge of awareness (which includes inhibition and direction) in relation to your body mechanics involves developing a conscious control system that you can 'insert' into your more or less automatic sequences of actions in daily life. You can gradually 'recalibrate' your body image towards a better standard of use. This standard becomes a conscious reference level that helps you to direct yourself in activity any time you choose.

Mapping the Body

The brain seems to store what we perceive as a system of internal cognitive maps that represent the experience of our bodies and external environments. These internal cognitive maps provide the checkpoints that we use to set our goals and achieve our purposes. (14)

The limits of our actions, including how well we use our bodies, depend on the quality of our internal maps. Yet no map is perfect. No map is identical to the territory it represents. This 'obvious' statement leads to the non-obvious truth that your body map is not the same as your body and can sometimes mislead you.

Neurologist Oliver Sacks, in his book *The Man Who Mistook His Wife for a Hat*, demonstrates this phenomenon clearly in the extreme cases of people with serious brain damage. After certain kinds of strokes, for example, people may not recognize that their arm or leg belongs to them. (15)

Even those of us with normal brains easily can misperceive our bodies. This is what Alexander discovered when he was trying to change his body use. Dr. Wilfred Barlow documented this also in a study of army recruits who were asked to stand up without pulling their heads backwards. The recruits largely reported that they succeeded, although independent observation found the reverse. (16)

A map also does not cover all of the territory. There is a great deal going on in the body that we never perceive. At any one time the limits of our body awareness are confined by our span of attention and our habitual perception. Nonetheless, practicing body awareness can help you purposefully extend the range and accuracy of your cognitive body map.

Alexander Technique teachers Bill and Barbara Conable have elaborated the notion of what they call "Body Mapping" in some detail. As they point out, just studying your own anatomy and learning the parts, their relations and movements more accurately can help you gain better control of your body use. This

might involve looking at pictures of skeleton and joint structures and finding the parts on yourself.

Some other ways to begin to better map your body include: getting a full body massage, getting a foot massage, soaking in a jacuzzi, having a 'body-work' session such as Rolfing, Body Harmony, Shiatsu, etc., and, of course, pursuing a course of posture-movement education, i.e., the Alexander Technique.

Sensory-Motor Amnesia

Our body maps are not static and unchanging. They continue to be built and to develop through the constant barrage of sensations from muscle, joint and touch receptors as we move and interact with other people and other aspects of our environments. There is evidence that we require movement, touch, and other kinds of experience on an ongoing basis in order to maintain a healthy body image. As anthropologist Ashley Montagu wrote, "The raw sensation of touch as stimulus is vitally necessary for the physical survival of the organism" (17)

When an area becomes injured, this incoming information may become limited. We can become protective of the part with guarding and bracing efforts. As a result of a drop in 'normal' sensation, your body map may develop a blank spot that can affect your movements and well being. Pioneer posture-movement educator Thomas Hanna referred to this blank spot as "sensory-motor amnesia." (18)

When a severe enough injury has occurred, this feeling of a blank or "dead" area has been found to correlate with reduced neural activity in the sensory cortex, which has been measured by evoked-potential studies of the brain. This can occur not only with brain or nerve damage but as a result of peripheral injuries as well. (19)

Oliver Sacks writes about this phenomenon in his book, *A Leg to Stand On*, which recounts his own experience with a severe injury. While hiking, he fell and completely tore the tendon attachment of the muscle that extended his left leg. As he wrote, even after it had been surgically repaired and given time to heal, "I had come to question the integrity, the very existence, of my leg..." (20)

Sacks recounts the extraordinary process he went through to begin to walk again. At first he did not even feel that the leg he was moving was his own. He had developed a profound sense of "alienation" from his leg and his normal self-image. What had to get re-mapped was not only the injured leg but also the

daily actions that the leg had been involved with and the very sense of self he had before his injury. (21)

Sacks found that the process of recovery came in jumps and starts, with a number of reversals. One thing that accelerated this process was the advice of a wise physician he consulted who asked, "What do you enjoy doing?" When Sacks replied that he loved to swim, the doctor made a phone call and immediately sent him over to a pool for a rehabilitative swim.

Sacks got to the pool, changed into trunks and hobbled with his cane to the side of the pool to meet the lifeguard who was expecting him. The young man challenged him to a race, grabbed the cane out of his hand and pushed him into the pool. After their race, Sacks stepped out of the pool and found that he was walking normally again.

As Sacks describes it "... unexpectedness, spontaneity, somehow evoking a natural response, ... lay at the heart of [his doctor's] theory and practice of therapy — the finding of some activity which was natural and meaningful, an expression of a will that found delight in itself" (22)

Can this sort of thing happen with injuries to the back? If you are recovering from a back, neck, or other injury, this notion of 'sensory-motor amnesia' may have some relevance for you. If you find that you still are not functioning quite normally even if you are free or mostly free from pain, it may be useful to find what you really enjoy doing and start doing it.

For example, to encourage spontaneous movement, find some music with a good rhythm that you enjoy (I like Billy Idol's "Dancing With Myself"). Close the door and blinds so no one will see you (if you find dancing with yourself embarrassing) and move to the music. As you explore the possibilities of movement, stay attentive to yourself so you can respond sensitively to feelings of comfort and discomfort. You can move as quickly or slowly, as much or as little as you feel comfortable doing. "There's nothing to lose and there's nothing to prove." (23) Let the music move you.

Enjoying this and some of the other bodily experiences mentioned in this article will help you begin to re-extend your body map and begin to feel your bodily self, beyond pain, as a source of happiness and enjoyment.

NOTES

1. pp.1, 6.
2. I coined the term "posture-movement" to make the interrelatedness of posture and movement explicit. Referring to motor habits with this term may keep

one from unconsciously separating so-called 'static' from dynamic aspects which remain, in fact, inseparable.

3. p.187. Here are the guidelines: (1) Make body awareness a daily practice. (2) Experience your full stature every day as often as you can. (3) Design your personal environment for better use. (4) Practice postural variety in your daily life.
4. Langer, *Mindfulness*, p.1.
5. *Drive Yourself Sane*, pp.36-48.
6. Much of the material in this and the next section comes from Chapter 8 of *Drive Yourself Sane*, "Non-verbal Awareness," and from an article of mine, "Emptying Your Cup: Non-verbal Awareness and General Semantics" published in *ETC: A Review of General Semantics*.
7. Perceptual Control Theory, also known as the "general feedback theory of human behavior" is explained in more detail in Chapter 7 of *Back Pain Solutions*.
8. From Wendell Johnson's book entitled, appropriately enough, *Your Most Enchanted Listener*, p.5.
9. Korzybski, pp.687-688.
10. Three excellent books about this discipline are Charles Brooks' *Sensory Awareness: The Rediscovery of Experiencing*, Betty Winkler Keane's *Sensing: Letting Yourself Live*, and Carola Speads' *Breathing: The ABC's*. You can also find more at the Sensory Awareness Foundation website at <http://www.sensoryawareness.org/index.html>.
11. "Charlotte Schuchardt Read on Sensory Awareness" from videotaped interview with Louise Boedeker (April, 1999) in *Sensory Awareness Foundation Newsletter*, Summer 2000. Available at <http://www.sensoryawareness.org/newsletter/summer00/charlotte.html>.
12. See "On Conscious Abstracting and a Consciousness of Abstracting" (Part I) and (Part II) by Milton Dawes.
13. From newspaper article (now lost) in *The Baltimore Sun*, dated sometime in the late 1990s.
14. Now neuroscientists consider the notion of maps in the brain a standard part of their science. See the article "Localization of Brain Function and Cortical Maps" in R.L. Gregory's *The Oxford Companion to the Mind*.
15. Sacks, *The Man Who Mistook His Wife For a Hat*, pp.55-58.
16. Reported in Barlow's *The Alexander Technique* (pp.17-18). The original study was published in 1947 as "An Investigation into Kinaesthesia" in *British*

Journal of Physical Medicine 10 (81) and reprinted in Barlow's book, *More Talk of Alexander*, in Chapter 8, "Physical Education Research."

17. Montagu, *Touching*, p.401.
18. See Hanna's book *Somatics*.
19. Oliver Sacks, in an article on "Nothingness" in the *Oxford Companion to the Mind*, writes: "Blockage to the spinal cord or the great limb plexuses can produce an identical situation [to that of brain injury], even though the brain is intact but deprived of the information from which it might form an image ... Indeed it can be shown by measuring potentials in the brain during spinal or regional blocks that there is a dying away of activity in the corresponding part of the cerebral representation of the 'body-image' ... Similar annihilations may be brought out peripherally, either through nerve or muscle damage in a limb, or by simply enclosing the limb in a cast, which by its mixture of immobilization and encasement may temporarily bring neural traffic and impulses to a halt" (pp.564-565).
20. *A Leg To Stand On*, p.98.
21. "Dr. Michael Merzenich and his collaborators ... have shown that ... brain pathways for registering touch sensations are not hard wired, but remain fluid in adulthood." (Montagu, p.289.)
22. *A Leg To Stand On*, p.150.
23. From the song "Dancing With Myself," words and music (1980) by Billy Idol and Tony James, on the album *Billy Idol*.

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