

**\*Dialogs\*****PAST BEGINNINGS**

By Martha Eddy

*An Initial Discussion of Relationships Between the Bartenieff Fundamentals of Body Movement and Perceptual-Motor Development Theory*

There is growing interest in perceptual-motor development, as is evident by its wider acceptance in the various fields of movement science (for example, Sensory Integration in occupational therapy, Neuro-Developmental Treatment [NDT] in physical therapy, research in motor learning in departments of physical education, and the Kestenberg Movement Profile and Body-Mind Centering and their developmental theories in dance education and dance/movement therapy). In teaching the Bartenieff Fundamentals<sup>sm</sup> in the Laban Certification Programs I have often been asked to link concepts from perceptual-motor developmental theory as we teach it in the Certification Programs at the School for Body-Mind Centering. I have written this article based on teaching experience rather than research so it is obviously in no way exhaustive. My goal is to stimulate dialogue about the perceptual-motor process across the movement/dance sciences and to remind us of the depth of knowledge Bartenieff brought to her system.

Irmgard Bartenieff, physical therapist and pioneer in the fields of modern dance, dance therapy, movement analysis, non-verbal communication, body therapy, and movement education, integrated her knowledge of perceptual-motor developmental theory gained in physical therapy training with Laban movement work to create her system of exercises and principles. Some obvious Laban movement ideas included are: every movement can be perceived as involving the body moving through space with effort dynamics; space is three-dimensional and so is human movement; there is a constant interplay of mobility and stability in any action.

Laban held as an ideal that we dance with our whole body-mind: "The good man is he who exemplifies in his movement physical, mental and spiritual values as a unified whole." He goes on to say, "The practice of body-mind movement in all its variations has to be supplemented by a thorough research into the nature and the ramifications of movement" (Thornton, 1971, p. 25).

From this base, Bartenieff did extensive research and chose to analyse closely how people relate to the environment with the most efficient use of movement effort. One outcome was "The Basic Six Exercises," which she devised to aid patients and dancers alike.

The language used in the teaching of Bartenieff Fundamentals and the naming of the "Basic Six" reflects Bartenieff's bias as a Laban-trained movement educator in that it describes neurologically specific "body level" occurrences in vernacular terms with reference to body parts, actions, and use of space. The following list compares the words most commonly used in the Bartenieff Fundamentals system to talk about body organization (the relationships of body parts in space) as compared to those used in the perceptual-motor re-education training of Body-Mind Centering (founded by Bonnie Bainbridge Cohen, occupational therapist and CMA).

**Developmental Body Part Relationships  
(Organization or Differentiation<sup>1</sup>)**

<i>Bartenieff Fundamentals</i>	<i>Body-Mind Centering</i>
Breath (condensing- expanding)	Breathing (lung and cellular)
Center-Periphery (core-distal)	Navel Radiation (in utero)
Head-Tail	Spinal
Upper-Lower <sup>2</sup>	Homologous
Body Halves	Homolateral
Diagonal	Contralateral (Cross-lateral)

Other taxonomies include the following words, listed in developmental order: contraction/release; caudal-cephalic; bilateral symmetry; unilateral; lateral symmetry; ipsilateral; asymmetrical opposition.

The above relationships are recognized in many schools of movement science as phases of neurologically instilled movement patterns. They can be observed in infants as they learn to crawl, creep, stand, and gain greater motor facility in all planes of movement. The systems referred to (BF and BMC) distinguish themselves from more traditional approaches to movement study in that they begin the study of the developmental process with acknowledgement of breathing as the most fundamental movement, and movement in and away from the navel center as an in-utero precursor to all other movement. Other movement sciences study the in-utero sensori-motor reflexes but generally don't discuss (and do not systematically retrain) movement patterns with a model of the underlying embryonic breath and fetal volitional movement. However, new developments (from prenatal specialists, for instance) may be surfacing. In BMC two facets of breathing are emphasized: external

respiration, the exchange of gases with the environment via the lungs, and internal respiration, the exchanges of gases at the cellular level.

**Some contributions of the Body-Mind Centering developmental perspective to the exploration of Bartenieff Fundamentals:**

- Reintroducing absolute basics, universality of movement learning experience.
- Differentiation of different types of weight shifts: those initiated by pushing from a body part with resistance against floor, person, object or eventually space through the center of the body, and those initiated by reaching from an extended body part further out into its line in space and pulling the center of the body through space. See "Exploring relationships," below, for further elaboration.
- Use of prone position--elicits more flexor tone and abdominal strength, provides sensations of gravity through front of pelvis, skull, sternum, etc., and all bodily contents.
- More head-tail exercises.
- Reminder of perceptual motivations for movement response.
- New ways to consider initiation (for instance, through the senses or organs)
- Applies each concept to all planes of locomotion and to transitional movements such as rolling. Connections are always made to the body-mind relationship. For instance, the adult experience of rocking allows for re-finding some of the emotional process concerned with learning to move: dynamic frustration, gathering energy to propel the next movement, and so on.
- Review of relationships between motor patterning, nervous system development, glandular stimulation and organ support. Use of physiological rhythms to establish flow fluctuations (Be on the look out for a future article by this author on the relationship of physiological rhythms to Kestenberg tension-flow rhythms.)

**Some contributions of Bartenieff Fundamentals to working with developmental processes:**

- Supine is often more comfortable for adults.
- Exercises are a keen observational response to inefficient movement patterns within Western Culture. Often less emotionally engaged with the environment due to more relaxed use of extero-sensory organs (mouthing, seeing, hearing), allowing for greater intero-reception (kinesthetic sense). Nevertheless, emotional responses do often emerge.
- Vernacular/anatomical/spatial names more accessible.

- Relationship to efficiency of movement emphasized. Exercises to strengthen particular connections in the body (heel-sitbone-coccyx and fingers-scapulae).
- Relationship to space emphasized; transition to the environment; bridging personal process with relationship with others.
- Cognizance of effort use and its contribution to movement motivation.
- Sagittal propulsion series is a very straightforward rendition of the developmental process that most normal, and even sedentary, adults can accomplish with instruction and practice.
- Other themes that Bartenieff addresses in her system that can be related to developmental theory: connectedness, weight shift, rotary action, initiation, preparation, spatial intent, center of weight, sequencing, core support, vertical throughness, countertension.

**Exploring relationships:**

Play with the Basic Six exercises with attention to push and reach patterns. Is there any pattern that feels more like navel radiation?

A push pattern is a movement that travels from one part of the body through the core of the body, usually deriving its impetus from interaction (pushing away) from another surface (the floor, the uterine cervix, another person). For example, a spinal push from the head begins at the head and sequences tailward. Push patterns give the body a compressed feeling. This compression reinforces a bodily sense of self and provides as well an experience of support from the environment.

A reach pattern is most efficient if it follows a clear experience of pushing. It travels from one part of the body outward into space, pulling along the rest of the body as a follow-through of the movement. For example, a spinal reach of the head begins at the head and often leads to a change of level for the entire body. Reach and pull patterns give the body an expansive or elongated feeling. They increase one's kinesphere and serve to make connections with the environment.

*Push:*

Pelvic shift sagittal--requires homologous push of the lower limbs.

Lateral pelvic shift--requires homolateral push of one leg.

Body halves--could easily be achieved if initiated by a homolateral push of any one limb.

Ilio-femoral flexion--requires a homolateral push on stable side.

Heel Rock--homologous push of the lower; followed by homologous reach of the lower (ankle joint/foot movement).

**Reach:**

Pelvic shift sagittal--reach of the tail.

Knee drop (knee reach)--reach of one limb results in cross-lateral pattern: that is, the reach of first the externally rotated leg and then the internally rotated leg sets up diagonal tensions through the body. The first knee to reach connects through to arm on opposite side.

Arm circle (including arm circle to sitting)--reach of one arm; this reach continues to deepen the cross-lateral potential begun in the "knee reach".

X-rolls--reach of any one limb.

**Specific Uses of Navel Radiation:**

Lateral pelvic shift--from core out to greater trochanter, from greater trochanter to core through to other greater trochanter.

Ilio-femoral flexion--condensing and expanding of an individual leg in towards and away from center.

Body halves can be explored as a triangle from center to each limb of one side of body (for example, from right arm through center out to right leg).

**The Basic Six and Reflexes**

If unfamiliar with primitive reflexes and righting reactions or responses, please consult references listed on p. 15. Bonnie Bainbridge Cohen's article "The Alphabet of Movement," in *Contact Quarterly*, provides an easily accessible and enjoyable way to learn about this phenomenon. A "reflex" is defined by Mary Fiorentino as "a specific, automatic, patterned response that is elicited by a particular stimulus and does not involve conscious control." Furthermore she tells us, "Our total postural behavior is the result of the interaction of reflexes and the relative strength of each one of them. . . . Early reflexes and postures are basic developmental patterns that are processed within the CNS (central nervous system). They are integrated, modified, and incorporated into more complex patterns in order to form the background for normal, voluntary movement and skills." (Fiorentino, 1981)

Cohen's contribution to this field has been an exciting one, in that she has empirically identified some new reflexes (indicated by an \*) as she has observed babies learning to move. Reflexes serve to modify movement behavior, so it stands to reason that for each reflex that serves to differentiate movement in one direction there is an equal and opposite reflex that balances bodily possibilities. Cohen has observed this accommodation in action, where one reflex serves to modulate a second reflex, and where necessary she has named them (for example, the "body half" asymmetrical tonic neck reflex needs to be modified by the "hand to mouth" reflex to allow for self-feeding). The interaction of reflexes results in "integrated

movement" in which the mover is no longer bound to only responding in one predictable way but can intervene with volition. Cohen also reminds us of the way in which reflexes are most significant to adult movement. She states, "It is important to note that when we look at integrated movement, we are not seeing isolated reflexes, but rather their underlying support and influence on movement." (Cohen, 1989)

Occasionally movement researchers will refer to seeing a normal adult responding "reflexively" under stressful conditions. What reflexes underlie the Basic Six exercises?

Consider both (a) those reflexes needed for the infant to ever achieve this movement (that is, precursors to learning this movement) and (b) those reflexes needed to "properly" execute the particular Bartenieff Fundamentals exercise.

**Navel Radiation Patterns:**

Ilio-femoral flexion/thigh-lift and pre-thigh lift--(a) flexor withdrawal, extensor thrust, crossed extension (tonic labyrinthine, protective extension and positive supporting of the legs, and symmetrical tonic neck reflex [STNR] in order to be in the supine, lower-extremities-weight-bearing starting position), negative stepping; (b) abdominal reflex\* for clear core initiation.

Lateral pelvic shift--(a) anal rooting\*, gallant (and reflexes needed for supine position); (b) extensor thrust of the hips\*\*.

Body halves--(a) asymmetrical tonic neck reflex (ATNR), hand-to-mouth\*, gallant, lateral spinal\*, mouth and anal rooting\* (and reflexes needed for supine position); (b) lateral spinal.

**Push to Reach Patterns:**

Heel rock--(a) flexor withdrawal, extensor thrust, all symmetrical spinal reflexes leading to sagittal spinal movement (for example, both side abdominal, gallant, or rooting reflexes); (b) integrated reflexes.

Sagittal Pelvic Shift--(a) symmetrical anal rooting (and reflexes needed for supine position).

**Reach Patterns:**

Knee drop/knee reach--(a) tonic lumbar\*, lumbar reach\* (and reflexes needed for starting pose); (b) flexor withdrawal, extensor thrust from knee\*\*, anal rooting, gallant, oral rooting.

Arm circle--(a) tonic lumbar, lumbar reach; (b) flexor withdrawal and extensor thrust of the hand\*\*, possibly Babinski.

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\*identified by Bonnie Bainbridge Cohen

\*\*as of yet not identified as a specific reflex due to "unusual" point of initiation

## Notes

<sup>1</sup>One can organize movement around any one of these relationships by initiating with all involved parts simultaneously or one can differentiate parts by stabilizing one and mobilizing the other. For example, the head and coccyx may move together, either towards or away from each other, or the head can move away from the coccyx while the coccyx stays still and vice versa. When the head moves as the coccyx stabilizes, the body-part relationship most expressed is head-tail.

Further discussion would require clarity about body-level phrasing. Can one initiate sequentially or can one only move or follow through sequentially? Sequential movement of the spine involves differentiating head and tail within a movement that is about overall head-tail body-part relationship.

<sup>2</sup>The Upper-Lower distinction made in BF is often not homologous. Homologous movement happens only in the sagittal plane and its corresponding dimensions (vertical and sagittal). During movement in the vertical or horizontal plane (lateral flexion or rotation), precursor movement to homolateral and contralateral movement is being practiced.

## References

Writings by Bartenieff that include reference to reflexes, righting reactions, and equilibrium responses:

"Neurophysiologic Correlates of Effort/Shape Analysis," with Martha Davis, appendix for "Effort/Shape Analysis of Movement: The Unity of Expression and Function." Reprinted in *Research Approaches to Movement and Personality*, Arno Press, NYC 1972.

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Bartenieff, Irmgard, with Dori Lewis, *Body Movement: Coping With the Environment*. Gordon and Breach, NYC 1981. (See Appendix B for Bartenieff Fundamentals Basic Six exercises.)

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