Symmetry: Culture and Science

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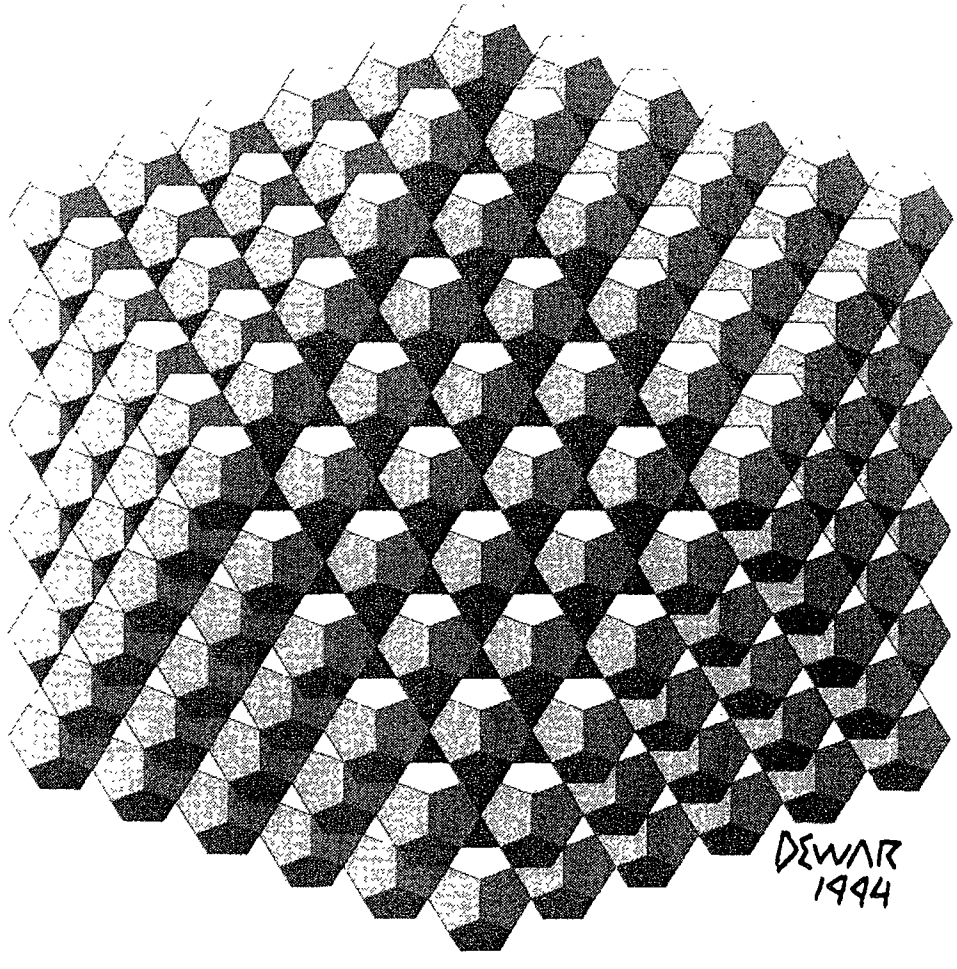

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COMPARISONS AND CONTRASTS: SYMMETRY AND ASYMMETRY IN FUNCTIONAL AND EXPRESSIVE MOVEMENT

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We will be approaching the concepts of symmetry and asymmetry from a particular location: two women educators working in a physical education department whose articulated orientation is movement education. One presentation has as its focus the ways in which symmetry and asymmetry can be used to come to a deeper understanding of the body in motion. We propose using the strategies of comparison and contrast across a variety of movement forms--creative dance, educational gymnastics, and fitness and strength training--to demonstrate the influence of symmetry and asymmetry in expressive and functional movement.

In Movement Education we tend to work with categories or concepts in order to study movement with a particular perspective or emphasis. Dance is considered to be a more expressive movement form, expressive in the sense that the purpose of the movement is to convey a felt sense about whatever it is the dancers are working on. For example, let us say a group of dancers is working on pressing actions. More than likely, the focus will be on conveying the qualities associated with pressing than with actually pushing or moving a large object. In gymnastics, however, pressing against a surface will produce an effect on the body, such as a take off, or a flight action, or a leverage action in the body, or an isometric contraction in the muscles resulting in increased control in balance. The pressing has a function. In strength training, pressing actions are usually done for the specific purpose of pushing a weighted object away from a muscle group, thus demanding a concentric contraction from that muscle group, the long term goals being hypertrophy (increase in muscle size) and strength development. On a continuum of expressive to functional, pressing in dance would be the most expressive, and pressing in strength training would be the most functional, with pressing in educational gymnastics being somewhere in

between since the control achieved by pressing in gymnastics does have an aesthetic as well as functional effect.

Of course, as with symmetry and asymmetry, existential categories like expressiveness and functionality form an intricate unity that we call movement. In research and teaching we can temporarily study these existentials in their differentiated aspects while recognizing that one existential always calls forth the others.

At this juncture we shall provide clarification on the components within our presentation.

I. Symmetry and Asymmetry in Creative Dance and Educational Gymnastics

The importance of symmetry and asymmetry to the body in motion is intertwined with evidence of control and aesthetic appreciation. It is, therefore, imperative that teachers involved in the education of the physical body understand the implications of this from a pedagogical perspective.

Interpretations of terms such as symmetry, bilateral symmetry, alternate symmetry, symmetry in time, symmetry in design, symmetry in shape, symmetry in rotation, symmetry in direction all need to be addressed in relation to how they apply to each discipline or subject area. Application of these concepts may differ in each environment, particularly with respect to the progressions used in teaching. For example, asymmetrical transfer of weight is much easier to perform than symmetrical, whereas symmetrical balances are less challenging than asymmetrical.

This portion of the presentation will address the concerns and comparisons of these concepts as used in both dance and gymnastics.

Key Terms

Symmetry - equal portions of the whole being distributed on either side of a line or plane into two or more parts exactly similar in size, shape and in position relative to the dividing points (Mauldon & Layson, 1979, p. 114)

- when both sides of the body move together doing exactly the same thing (Morison, 1975, p. 94)

- usually associated with body design . . . . the patterns and positions made by one side are taken as mirrored on the other side (Preston-Dunlop, 1980, p.3)

Bilateral Symmetry - is reference to an object that can only produce symmetry by dividing/division in one plane (e.g., human body must be divided vertically along the line of the spine); a truly symmetrical object could be divided through any plane and remain equal (e.g., a cube or sphere).

Alternate symmetry/symmetry in time - synonymous terms indicating use of an asymmetrical action with immediate repetition by the opposite side of body, thus creating equalness to both halves of the body over a duration of time.

Symmetry in design/symmetry in time - may be extended to partner or group work. In design each partner may be using asymmetrical actions but as a mirror image they produce symmetry of shape. In time one partner may use an asymmetrical stress in transition and be followed by the other person using the opposite side of the body to produce symmetry in time between them.

Direction of motion - true symmetry can only be achieved transferring weight into a forward, backward, upward, or downward direction. Any sideways or diagonal motion creates a one-sided stress leading to asymmetry.

Rotation of the body - symmetry can only be achieved through rotations around the horizontal side-to-side axis; rotation around the vertical and front-to-back axes invoke a one-side stress leading to asymmetrical action.

II Symmetry and Asymmetry in Training

The notion of symmetry operates at a number of levels simultaneously in training. By "training" I mean any form of activity used to exercise, improve, or challenge the body and the body's various systems. Symmetry is seen in (a) the overall size and shape of the body, (b) the size and shape of the body parts, (c) the ways in which the body/body parts move in the various movement patterns associated with training, (d) the arranging of exercises and activities to form

"balanced" training programs, (e) the arranging of exercises and activities to form "balanced" individual sessions and (f) the "balancing" effect of training on the lifeworld.

Asymmetry, the necessary counterpart, is also used strategically in the design of exercises, individual sessions, and programs. Exploring symmetry and asymmetry in training experience permits a deeper understanding of parallels and patterns in the other departments of one's life. This portion of our project will address symmetry and asymmetry in training and discuss their crossover potential for "balance" in lifestyle.

References

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