

*JOURNAL OF ARCHITECTURAL EDUCATION*

VOL. 29, NO. 1, [1975]

**“THE BODY MATRIX”**

# THE BODY MATRIX

Body experience provides us with a matrix by which we order our essential perception of space, a matrix which is more complex and naturally knowable than the mathematical matrices we so often employ as design tools. From birth the body learns to operate within a body-dependent "sphere" of space which is richer in texture and more sophisticated geometrically than we generally allow. An example of perception belonging to the body matrix is right and left handedness. It is obvious enough that this property is derived more from body experience than from an objective study of right and left handed symmetries.

Specific psychic properties of the body matrix have been studied by a lineage of medical scientists whose work is generally known as "body image" theory. These studies focus on an individual's psychic sense of his body rather than on the mechanical human body. A body image is a gestalt. It is a whole percept that one has of one's own body, and necessarily, therefore, a *percept of the space in which one's body operates*.

I have, in this essay, attempted to extract from those studies some consistent spatial properties which together may be seen as generating the body matrix. I have given some attention to meanings associated with elements and domains of the matrix, especially those which may give meaning to architectural space.

## *The Body Boundary*

Surrounding, and in the vicinity of the physical body, is a psychic boundary which has elastic, abstract and extendable qualities. That psychic boundary unconsciously separates and defines inside personal space from outside, extra-personal space. Should that boundary be damaged or badly distorted (for example, by an hallucinogenic drug) a person's actions and judgments would be impaired.

Perhaps that boundary is best described as a sensitized zone which can magnify or dampen forces emanating from within and without the body. A particular body zone which is physically weak or psychologically vulnerable, or an area difficult to defend, such as the back, affects the shape and texture of the psychic boundary.

An individual might act to modify the shape and texture of his boundary artificially by incorporating a weapon, a shield or a badge. Hats, vehicles and machines may push the boundary further away from the skin. Any artifact that directly attaches to the body and is subject to body reflex action may contribute to the form and location of the body boundary.

Seymour Fisher has studied the "barrier" properties (a measure of the definiteness) of the body boundaries of different types of individuals as well as individuals from different cultures. He has observed, for example, that most Navajos and Bhils have strong barriers while most individuals from modern Western cultures have comparatively weak barriers. He has wondered whether the complexity and extreme division of labor in our industrialized society has produced forces which might overwhelm our ability to muster strong personal boundaries.

## *The Internal Domain and Centricity*

The space within the psychic body boundary is far more vast, complex and influential on our perception of the world than we normally allow in conscious thought. During the early, nonverbal years of a child's development certain sensations, experiences, and feelings are perceived as emanating from within (coenaesthesia) as distinguished from those which are stimulated from the outside. "Landmarks" within the body boundary, solids as well as voids, ultimately acquire special meanings in relation to activities outside the boundary.

The stomach and the mouth are regions of ongoing internal activity. An individual knows that the mouth and stomach are connected and forms an image of an internal system which is elaborate and organic. It is curious that in anger the stomach and mouth become targets of aggression, while in hospitable states they are more pertinent to matters of incorporation and oral gratification.

The brain, an organ which we precisely name and locate, is a major "place" in the bodyscape, the substance of which is psychically perceived as a void, rather than a solid (the hollow head).

The heart, with its auditory, rhythmic, and tactile presence, is imagined by many to be the center, and the most important part of the body. This attribute may originate from a folk belief that of all the body organs, it is the most critical for life. Expressions such as "the heart of the matter", and "the heartland", evoke a sense of central concern and place. When a dancer becomes conscious of body motion and exertion, however, he might regard the stomach muscles as his body center. Freud, on the other hand, has suggested a more libidinal focus, combining into a triangular framework several body locales which centrally organize body experience.

Despite the multiple and varying locations for a center place within the body, the

sense-of-center itself is indispensable for the spatial ordering of stimuli. Centricity is fundamental in the spatiality of the body image. Paul Schilder, in commenting on the psychic process of an individual's identification (with another person or object) dramatizes the sense-of-center by characterizing the psychic framework of experience as spherical.

## *The Psycho-Physical Co-Ordinates*

Psychically there resides within the bodyscape a set of co-ordinates. FRONT-BACK, RIGHT-LEFT and UP-DOWN. UP and DOWN are always oriented to gravity, while the orientation of FRONT-BACK, RIGHT-LEFT is determined by the position of the head.

The orthogonality of FRONT-BACK, RIGHT-LEFT is conserved regardless of body contortion. If the head is rotated in relation to the feet, the body muscles on the face-side develop higher tone while the back-side muscles show lower tone (proprioception). In cats this tonic asymmetry prepares them to see and then spring.

Because right and left is a property that incorporates the entire body, we orient ourselves about a psychic plane (Schilder's midline plane) which intersects the two sides of the body and projects forward from the face into deep space. We may find in this phenomenon our sense of frontal bilateral symmetry.

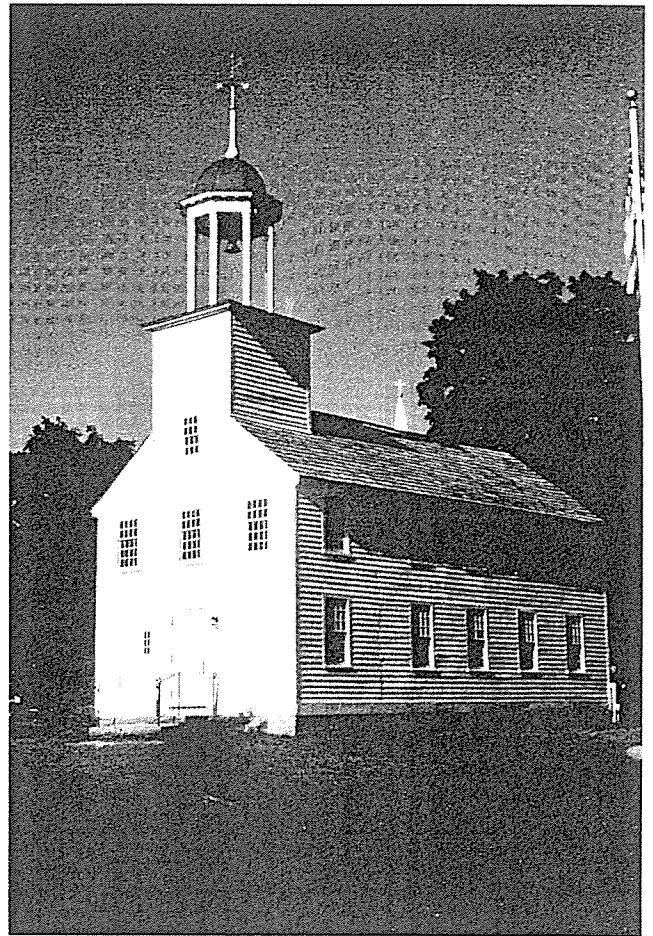
Front, of course, is the primary orientation which implies strength and virtue. Back has private and earthy (spatially lower) implications. The right-side of the body has come to be associated with power, rationality, dexterity and self-assertion (most likely from the dominance of right-handedness), while the left-side is sinister, evil and weak. It appears that the meanings associated with the head-oriented co-ordinates are rather stable and moral. They carry the normally horizontal "go-forward" and "be-right" signs.

In contrast, the vertical signs are unstable, mysterious, and reversible in value, as well as being the most animate and splendid. Upward, meaning upward from the center of the body, means striving, fantasy and aloofness. Downward is insecure, realistic and depressing. Some analytical studies of an individual's psychic sense-of-size have shown that persons who have experienced failure often imagine their bodies to be relatively shorter in stature.

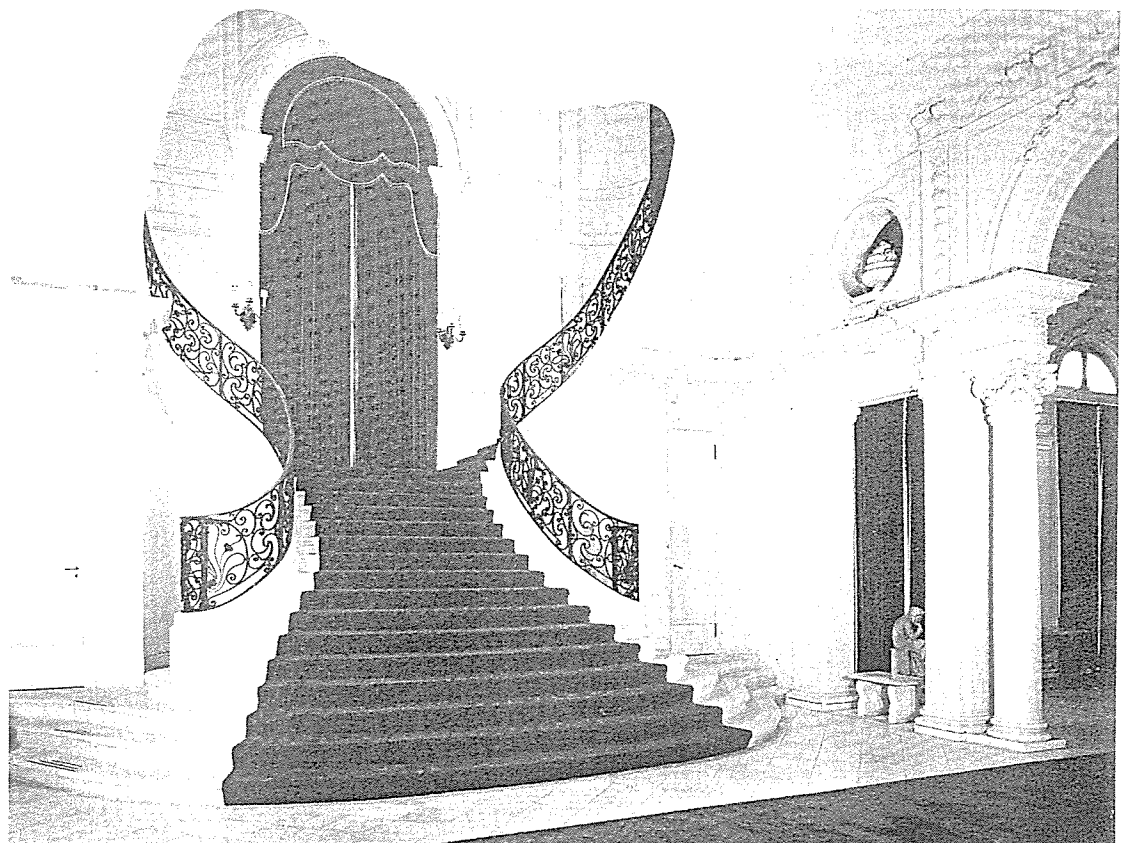
Schilder has made the intriguing observation that body zones which are more active and pressured (innervated) feel heavier



*Church of Tonantzitra, Mexico  
(photo K Bloomer)*



*Schoolhouse, Branford, Connecticut  
(photo K Bloomer)*



*Heart staircase. "Rosecliff" New-  
port, Rhode Island*

When one is standing one senses the legs as heavy and massive; when lying down the feeling of a heavy mass moves towards the back while the abdomen seems to be more or less empty. The point of juncture between the body and the environment, the region of innervation, seems weighty despite the fact that the actual physical distribution of weight is always homogenous.

### *The Face as Body-Substitute*

By recognizing that our body is the center and source of the spatial matrix through which we experience the world, we may better appreciate the role of facial expression. The face is truly a facade which acts as a frontal sign and message system for the body. Some facial expressions and activities are substitutes for experiences which could be consummated by the whole body.

In this respect the face becomes a second corporal center within the bodyscape (albeit a more two-dimensional one), and in so becoming it promotes the dichotomy between expression and reality (between theatre and life).

The meanings originally charted on the psycho-physical co-ordinates (by upwardness, downwardness, opening and closing) are expressed metaphorically by smiles, frowns, grimaces, makeup and hair style.

Perhaps the most powerful body experiences are signalled by the eyes, which in psycho-analytic literature are identified as having "taking-in" and "incorporative-like" significance. A hunger, both sexual and for food, may be expressed by wide and consuming eyes. A threat, a desire to possess, may be delivered with a stare.

The face, thus, becomes a signal system for deeper corporal needs. It is a body-region which employs the devices of abstraction, simplification and illusion.

### *The Reciprocity Between Body and Environment*

Unless we can demonstrate that body values and experiences directly affect our perception of the environment, we have no basis for suggesting that the body matrix gives meanings to architectural space. Schilder followed his observations on the perception of mass within the body by examining how we perceive mass in objects outside the body. He concluded that "the same principle underlies the perception of external objects and one's own body." When we hold an object in our hands which we "know" is homogenous, we nevertheless perceive its mass to be heavy towards the bottom and light towards the top.

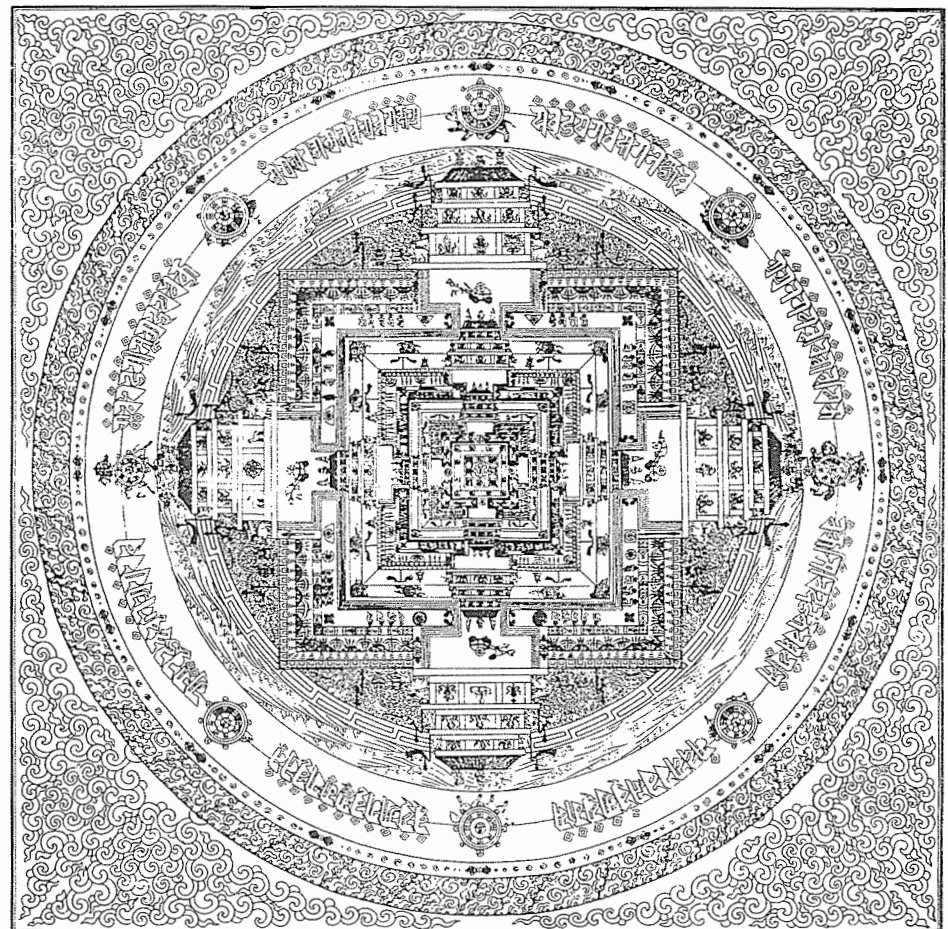
Our entire relationship to extra-personal space is both dynamic and conflictive. We are constantly seeking order in the outside world as well as being stimulated by it.

Obviously the world we experience from a pillbox must be different from the one we experience from a bicycle. A body boundary (or any boundary) that is opaque and difficult to penetrate would concentrate sensations along the boundary's surface, like a knocking on the door. Conversely, a boundary which is transparent, open and penetrable would stimulate greater fusion between bodily and environmental events.

If landmarks of the external physical domain are very close to us, such as a nearby wall, we perceive our body as having shrunk; while if they are at a distance, such as an opening of a doorway, window or vista, we perceive our body as having expanded.

When we consciously stare at an object, the body boundary hardens and there is a heightened sense of separation; whereas a casual viewing weakens the sense of separation and causes, instead, a tendency to psychically fuse with the object. By touching an object we increase the definiteness of our body boundary, while conceptually shrinking the body-part that is doing the touching, such as the finger. When we deliberately point at something, rather than simply point outstretched to nothing specific, we feel that our fingers are longer and further away than otherwise. This phenomenon is similar to extending the body-boundary by holding forth a weapon.

*Below—Mandala of Kalachakra*



We transact with the external world through our bodies (which carry within their boundaries an inner world rich with meanings and spatiality); and by attempting to ignore the body we are suppressing a cosmos of feelings and legacies which is the stuff of being human. The body matrix not only gives us our essential knowledge of space, it also includes a palate of meanings, transparencies, central places, hard and soft edges, memories and the rhythms which constitute our human identity.

"Although the socialization practices of most cultures strive mightily to teach the individual to make decisions on the basis of objective reality and to ignore his body, it would indeed be surprising if he could nearly jettison the primary body guidance system of his early years."\*

In architectural matters, it appears that efforts to jettison the body spatiality, especially its interior spatiality, have left us with a drab and over-simplified surround.

It might be said that our deepest percepts are inextricably bound to what we are. Would it not be a paradox if our academic emphasis on objectivity (which in our teaching often requires an excessive orientation to frontal seeing and two-dimensional organizing) should lead to a general dulling of our perceptual powers?

\*Seymour Fisher, *Body Experience in Fantasy and Behaviour* (Appleton Century Crofts, 1970), p 575.



Suggestions for further reading:

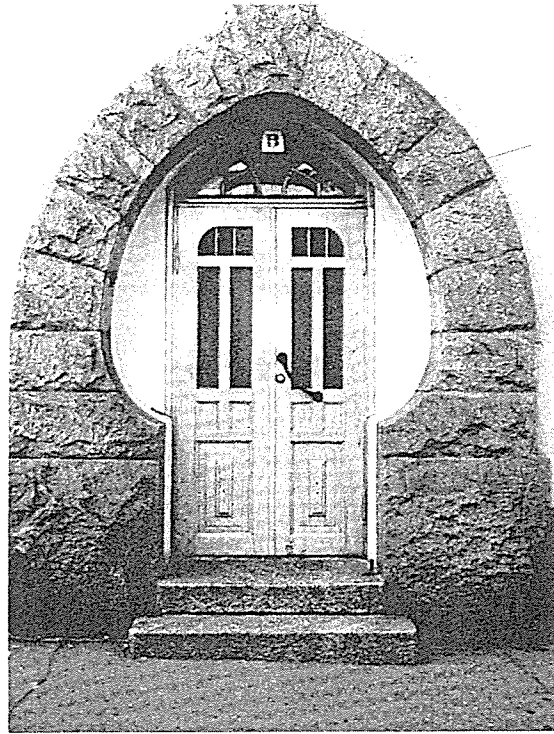
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*Gibson, James J*, *The Senses Considered As Perceptual Systems* (NY, Houghton Mifflin, 1966).

*Schilder, Paul*, *The Image and Appearance of the Human Body* (NY, International Universities Press, 1950).

*Wapner, Seymour and Heinz Werner*, *The Body Percept* (NY, Random House, 1965).



Above—Doorway in Helsinki (photo Douglas Ballon)

*Kent Bloomer*, Director of Undergraduate studies in Architecture at Yale and a sculptor, has focused on spatial morphophilia.

Below—Stilt garden at Hidcote, England (photo Candace Harris)

