

# Corporeal Experience: A Haptic Way of Knowing

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**Contemporary architectural discourse suggests we consider the influence of a variety of senses on our understanding of space. This article discusses literature that explores the character and significance of spatial perceptions gained by movement, touch, and other sensibilities, which are known as haptic senses. Case studies of ranchers in rural Montana investigated how people accumulated their place-based experiences. This population demonstrated a strong tendency to rely on geographic contact and movement in space to inform them about the places in which they lived and worked. The article concludes by discussing the implications of considering haptic sensibilities in design education.**

## Introduction

It has been twenty-three years since the publication of *Body, Memory, and Architecture* (1977), in which Kent Bloomer and Charles Moore proposed that as architects we have overlooked a realm of human spatial experience with a “historic overemphasis on seeing as the primary sensual activity in architecture.”<sup>1</sup> Even after a generation of emphasis on environment/behavior studies in design education, architects are still preoccupied with one type of perceptual experience. Current architectural discourse has plentiful justification for taking into account a range of perceptual sensibilities as informants for design, such as sound, olfactory qualities, and movement of the body in space. However, this accounting is difficult because our training is primarily visual.

The institutions of architectural practice and education have a long tradition of rewarding the handsome building, or one that is innovative in appearance. This is reinforced by the forms of representation and communication we commonly use that offer us the visual information we need to assess the appearance of the design. Conventions such as unpopulated elevation drawings and models and uninhabited exterior photography of architectural precedents persist as basic tools of design training. Although these tools are clean and efficient means of communication, these forms of representation tend to stress object rather than experience, and to elicit discussion, critique, and learning primarily on visual character.

Have we selectively overlooked propositions of widely accepted contemporary architectural thinkers who suggest that we explore other modes of inquiry regarding how people understand space? Frampton, for example, emphasized the importance of considering the experiential qualities of places in addition to the visual. One of the major themes of critical regionalism, according to his early manifesto, is tactile experience: “The tactile resilience of the

place-form and the capacity of the body to read the environment in terms other than those of sight alone suggest a potential strategy for resisting the domination of universal technology.”<sup>2</sup>

The interpretive effort in critical regionalism—as in other forms of contextual design—may be limited in scope if the tendency of the designer is to place singular emphasis on the visual character of existing settings. What gets in the way of new thought is the guiding assumption that the inherent identity of a place *can* be identified by only visible formal elements, and that a particular visual interpretation of place identity is largely shared by inhabitants.<sup>3</sup> If we accept the notion of critical regionalism we must seriously consider aspects of experience in space that are nonvisual.

In *Chambers for a Memory Palace* (1994), Donlyn Lyndon and Charles Moore base a series of spatial themes on observations of characteristic experiences that various places make possible. The circumstances generating these themes create experientially memorable places for the individual. Lyndon and Moore are addressing sensibilities beyond visual aesthetics, derived from moving through spaces, engaging with them, and having memorable experiences in them. The visible elements of places “in themselves are of little significance; it is the way they act to structure our experiences that affects us.”<sup>4</sup> Physical work, movement, and intimate contact with the built and natural landscape give people the opportunity to formulate knowledge about places that cannot be gained by singularly visual means.

With the exception of a few minority, architects persist in their reluctance to fully acknowledge the body in space. Design education in general has failed to establish pedagogic methods for appropriately exploring a range of topistic (place) experiences as tools for design.<sup>5</sup> In formal design learning, we rarely address or explore culturally and individually developed topistic experiences because we do not understand these modes of learning very well, and perhaps because this kind of autonomous knowledge undermines authority. However, a variety of forms of place learning will be increasingly important resources in design pedagogy if we seek to move away from emphasis on architecture as object. Broader inquiry may also reveal new knowledge about place experience as a resource for planning and design in a culturally complex world.

## Haptic and Somatic Learning

*Haptic perception* is a term used in psychology to describe a holistic way of understanding three-dimensional space.<sup>6</sup> The word *haptic*, from a Greek term meaning *to lay hold of*, is used to describe the various sensibilities of the body to its position in the physical envi-

ronment and to its own condition. This holistic system of environmental perception goes far beyond visual spatial perception, and refers to a more complex geographical experience. It involves the integration of many senses, such as touch, positional awareness, balance, sound, movement, and the memory of previous experiences. Such combinations of sensibilities have been referred to as *simultaneous perception*.<sup>7</sup> According to learning theorist James Gibson, a wide range of the experiences produced from these sources are not namable sensations, and hence have been long overlooked by researchers.<sup>8</sup> Considered in the creative process, haptic experience can be used to suggest alternative ways of considering designed space.

The angle of joints and the disposition of bones (articular sense) is critical to our geometric knowledge about the nature and shape of the settings with which we have immediate contact.<sup>9</sup> Psychologist Edwin Boring recognized the sensibility of the body to itself, which he termed *somasthesis*.<sup>10</sup> Bodily effort involved in moving across a landscape, for example, provides internal corporeal knowledge of the slope or texture of the terrain. Physical educators began to adopt this principle in the 1960s, and promoted the idea of a cyclical connection between sensation, perception, feeling, thought, and action.<sup>11</sup> Somasthetic and haptic perceptions are gained through corporeal activity and physical work. They allow us to know places in intimate, unself-conscious ways that visual sensibilities cannot describe.

In place perception, there is on the one hand the conceptual understanding of place and, on the other, the precognitive experience of it. Erwin Straus defines this mind/body duality as two modes of personal experience: *gnostic* and *pathic*.<sup>12</sup> The gnostic mode consists of “looking at” objects as distinct from the self, and deals with cognition of the object. The pathic mode guides our perception in touching, and places emphasis on preconceptual phenomenal experiences, and the changing ways in which things appear directly to the senses as we move through space. Through unself-conscious knowledge registered in the physical body and in memory, we evolve a deep understanding of the identity of places and strengthen our emotional connections with them. Inspired by Gibson’s work, Bloomer and Moore suggest that we learn most of what we know and feel about the physical environment through haptic perception and our basic orienting system.<sup>13</sup>

The concept of haptic and somatic systems has changed the way in which environmental psychologists think about spatial knowledge. Having previously placed its primary emphasis on visual knowledge and perception, the focus of spatial understanding has shifted to a tactile and positional awareness. People gain environmental under-

standing from tangible physical experience, from coming in contact with natural and built elements, and from moving through spaces, as well as from seeing objects in space. As Von Maltzahn asserts, when reinforced with our visual perception these holistic systems form our phenomenological understanding of the environment so that the “whole sensory envelope creates in us the sense of spatiality.”<sup>14</sup>

Humanistic geographers offer us insight into the dynamic and deep-rooted relationships between people and location that are reflected in their topistic perceptions. Our understanding of space is influenced by the passage of time and our actions and interactions with an environment over time. A “time-space routine” is a set of habitual kinesthetic behaviors that take place in a locality over an extended period, according to geographer and environmental behaviorist David Seamon.<sup>15</sup> He describes a set of integrated movements that support a particular task or larger aim as “body-ballet,” and suggests that when this is fused in location with a time-space routine, it becomes “place-ballet.”

Tuan suggests that topophilia (love of place) demands total physical engagement with the land, and that, through the repeated occurrence of ordinary events, one can accumulate a strong sentiment for a place.<sup>16</sup> The significance of participation and reciprocity in haptic sensing is reinforced by Paul Rodaway:

Focusing on the dimensions of touch in individual experience also reminds us that this geography is always, ultimately, in reference to . . . our body, and each space and place discerned, or mapped, haptically is in this sense our space and because of the reciprocal nature of touch we come to belong to that space. In this sense the sense of place is grounded in the participatory quality of haptic geography.<sup>17</sup>

Kraft Von Maltzahn emphasizes our often subconscious interactive role in forming the character of space by our actions as well as our role in interpreting it. “Our acts are intentional, and intentionality confers meaning on the composition of the space in which we act.”<sup>18</sup>

Culturally or individually influenced topistic learning styles shape both perceptual priorities and associated meanings. Like other forms of adult learning, topistic learning, although little studied, probably varies according to learning styles of the individual or cultural group. Some people, for example, are more tactile or kinesthetic, some are more visual, some rely heavily on positive reinforcement from other sources, and some depend upon learning by trial and error.<sup>19</sup> Rodaway establishes that these sensibilities are indeed culturally variable, and that, in contrast to the haptic geography of Japanese and Arabian cultural behavior and urban space,

Americans in general reflect “a greater reliance on visual cues in the environment over tactile ones.”<sup>20</sup>

### Case Studies in a Ranching Community

Given that haptic perception has emerged as a prominent theme in a variety of disciplines, could design fields benefit by exploring the significance of it? A study of ranching families in the Gallatin Valley in southwest Montana provides further evidence of the importance of haptic learning in understanding space. Three case studies were used to determine the types of topistic experience that people in a rural environment drew from to understand their locale. The settings, considered in a larger inquiry on place perception, presented a convenient, multigenerational population that lived and worked on their own ranches, clearly bounded areas consisting of buildings and landscape. The ranches ranged from eighty acres to more than five thousand acres of agricultural and grazing land, and each family’s dwelling was set within a farmstead on the acreage. This discussion summarizes the primary findings from the larger study.<sup>21</sup>

A cultural anthropology research model provided a means to glean perspectives of the place from individual occupants.<sup>22</sup> Like an ethnography, the study made extensive use of cultural informants combined with photography and mapping techniques.<sup>23</sup> Two generations of three families were interviewed on their ranches. As third- to fifth-generation residents of the community, family members offered rich and varied descriptions of locality through extensive open-ended interviews.

Participants were asked open-ended questions about the entire environment of their ranches, with the boundaries being defined by ownership or grazing rights. Questions were intended to initiate a monologue that allowed participants to consider the buildings and landscape in their own terms. People were asked to describe the buildings, for example, and how they sat in relation to the larger landscape. They were also asked to talk about their preferences for parts of the ranch, to describe a day of work, or to talk about former buildings that had been removed, burned, or demolished. Their responses were allowed to flow freely into tangential topics about life and work on the ranch.

Attention is the learned counterpart of perception, and it can determine which information we notice in a field of potential stimuli, and which information we overlook. This is known as *selective attention*.<sup>24</sup> For the adult learner, such as the subjects of this study, the individual determines this screening process according to cultural influences and personal experience. Asking people to talk

about their environment in their own terms gave many clues about what was important to them, whether they described memories of childhood experiences, explained how the cattle were fed in winter, recalled an anecdote about a neighbor, or complained about the hazard of repairing a barn roof.

The interview transcripts were scrutinized in detail to determine by what modes of perception and understanding people were thinking about, recalling, and describing their space. Categories for analysis emerged as the study evolved,<sup>25</sup> and comments were identified and isolated according to multiple recurring and overlapping themes. (See Figure 1.) The verbs and adjectives that people used to describe events, situations, or settings reflected the sources of their topistic experience.<sup>26</sup> For example, a seventy-year-old rancher discussed his barn:

There’s wood posts in it now, clear through it. There used to be 6x6s but they weren’t buried in the ground. So when we cleaned the place out . . . there were gaps under the posts where the ends had rotted away. . . . We replaced all the posts inside. We took out every other one, so I reinforced [the beams] and set posts that go down about three feet.<sup>27</sup>

The verbs *buried*, *cleaned*, *replaced*, *took out*, *reinforced*, and *set* all indicated acts of work and physical activity, which suggest a haptic mode of perception. The verbs and adjectives thus suggested how understanding was accumulated. The ranchers discussed their places in terms of events from ordinary daily experiences or from extraordinary family anecdotes. The terms that were used in their descriptions contributed to a taxonomy that suggested what kind of knowledge was being engaged unselfconsciously to recall information about the environment, visual, haptic, familial, or cultural knowledge.

Perceptions of the physical character and organization of the space expressed by two generations of each family were also mapped. Former arrangements of buildings on the same farm site over a period of approximately one hundred years were graphically reconstructed from their family stories in a series of site plans. This produced a perceived historical geography that was compared with the existing site plans.<sup>28</sup> (See Figure 2.)

### Tactile Resilience of Geographic Knowledge

In concurrence with Yi-Fu Tuan’s assertions about topistic learning, the ranchers gained a wealth of deep-rooted experience about their places from their physical work and from daily tasks that involved movement through space.<sup>29</sup> As ranchers talked about their

	visual	haptic	social: cultural	social: family stories
Perception of design attributes of bldgs & structures	III			I
Building character	I	III		I
Form	II	II		II
Plan	III	IIIIIIIIII		I
Surface	III	II		I
Openings	I	IIIIIIIIII		IIIIII
Circulation	IIIIII			II
Structure / construction	I	IIIIIIIIII		IIIIII
Color	II	IIIIIIIIII		II
Materials	I	IIIIIIIIII		IIIIII
Scale	III	IIIIIIIIII		IIIIII
Function				
Other				
Perception of relationships between bldgs & land				
Proximity of structures	III	IIIIIIIIII		II
Site plan organization	IIIIIIIIII	IIIIIIIIII		II
Structure / topography	II	IIIIIIIIII		I
Ditches	IIIIII	IIIIIIIIII		II
Roads / railroads	II	IIIIIIIIII		II
Views (out / in)	II	IIIIIIIIII		I
Land use	II	IIIIIIIIII		I
Boundaries	II	IIIIIIIIII		IIIIII
Livestock				IIII
Perception of natural elements:				
Season / weather	IIIIII	IIIIIIIIII		I
Natural water	IIIIII	IIIIIIIIII		II
Wooded areas	I	IIIIIIIIII		II
Lone trees	IIIIII	IIIIIIIIII		I
Topography	III	IIIIIIIIII		I
Vegetation	II	IIIIIIIIII		I
Ground texture	I	IIIIIIIIII		I
Wildlife	I	IIIIIIIIII		I
Land size / ownership				IIIIII
Perception of larger region:				
Neighbor	IIIIII	IIIIIIIIII		II
Town	I	IIIIIIIIII		IIIIII
Gallatin Valley				I
S.W. Montana				II
Montana	I	II		I
Agricultural West	I	II		I

	visual	haptic	social: cultural	social: family stories
Perception of design attributes of bldgs & structures	II			I
Building character	I	II		II
Form	II	IIIIIIIIII		II
Plan	III	II		I
Surface	II	IIIIIIIIII		I
Openings	IIII	IIIIIIIIII		I
Circulation	IIIIII	IIIIIIIIII		I
Structure / construction	II	IIIIIIIIII		II
Color	II	IIIIIIIIII		II
Materials	II	IIIIIIIIII		IIIIII
Scale	III	IIIIIIIIII		IIIIII
Function				
Other				
Perception of relationships between bldgs & land				
Proximity of structures	III	IIIIIIIIII		II
Site plan organization	IIIIIIIIII	IIIIIIIIII		II
Structure / topography	II	IIIIIIIIII		I
Ditches	IIIIII	IIIIIIIIII		II
Roads / railroads	II	IIIIIIIIII		II
Views (out / in)	II	IIIIIIIIII		I
Land use	II	IIIIIIIIII		I
Boundaries	IIII	IIIIIIIIII		IIIIII
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Wooded areas	I	IIIIIIIIII		II
Lone trees	IIIIII	IIIIIIIIII		I
Topography	III	IIIIIIIIII		I
Vegetation	II	IIIIIIIIII		I
Ground texture	I	IIIIIIIIII		I
Wildlife	I	IIIIIIIIII		I
Land size / ownership				IIIIII
Perception of larger region:				
Neighbor	IIIIII	IIIIIIIIII		II
Town	I	IIIIIIIIII		IIIIII
Gallatin Valley				I
S.W. Montana				II
Montana	I	II		I
Agricultural West	I	II		I

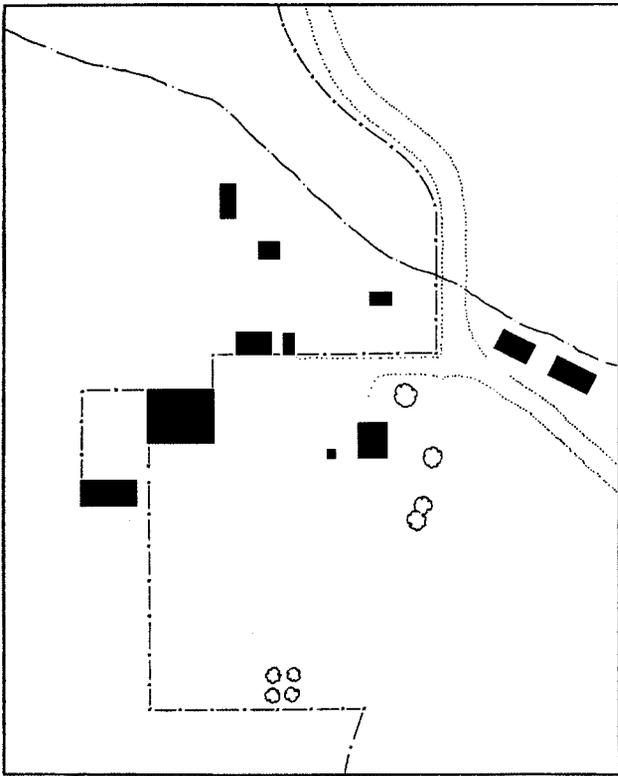
	visual	haptic	social: cultural	social: family stories
Perception of design attributes of bldgs & structures	IIII		II	IIII
Building character	II	I		IIII
Form	IIII	IIII		IIII
Plan	III	IIIIIIIIII		I
Surface	III	IIIIIIIIII		I
Openings	I	IIIIIIIIII		IIIIII
Circulation	IIIIII	IIIIIIIIII		IIIIII
Structure / construction	I	IIIIIIIIII		IIIIII
Color	IIII	IIIIIIIIII		I
Materials	I	IIIIIIIIII		IIIIII
Scale	III	IIIIIIIIII		IIIIII
Function				
Other				
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Proximity of structures	III	IIIIIIIIII		II
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Structure / topography	II	IIIIIIIIII		I
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Roads / railroads	II	IIIIIIIIII		II
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Vegetation	II	IIIIIIIIII		I
Ground texture	I	IIIIIIIIII		I
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Gallatin Valley				IIII
S.W. Montana				II
Montana	I	II		II
Agricultural West	I	II		IIII

Female (88yrs.) born and raised on site

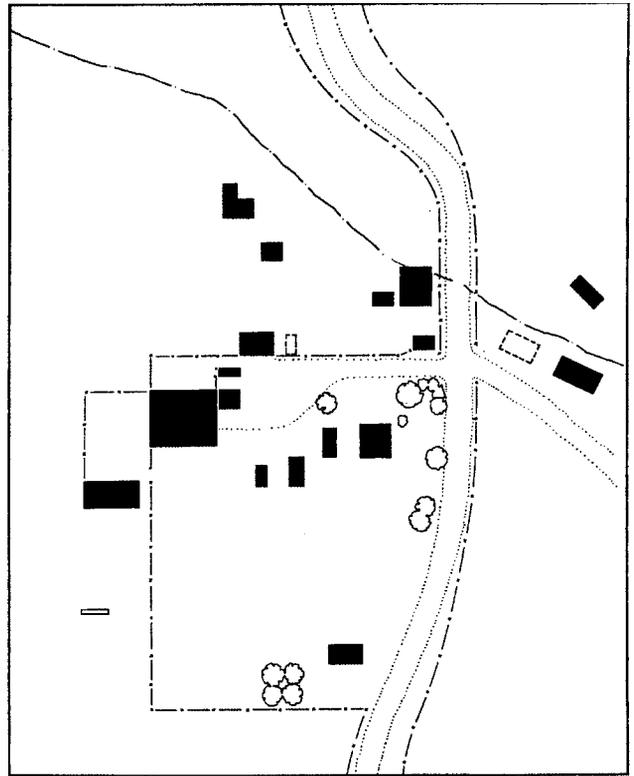
Male (60 yrs.) born and raised on site

Male (50 yrs.) born and raised on site

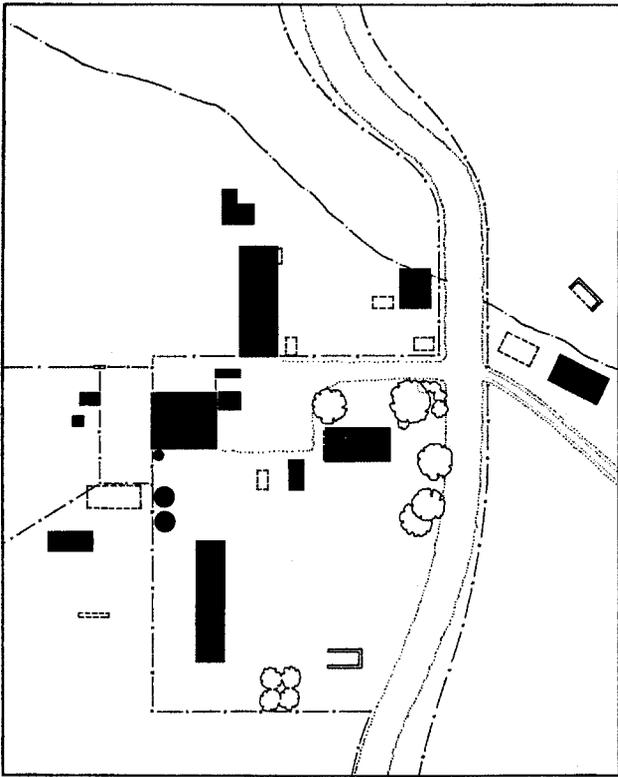
1. Comparison of perceptual modes of three family members at the ranch their family acquired in 1890 (site #1).



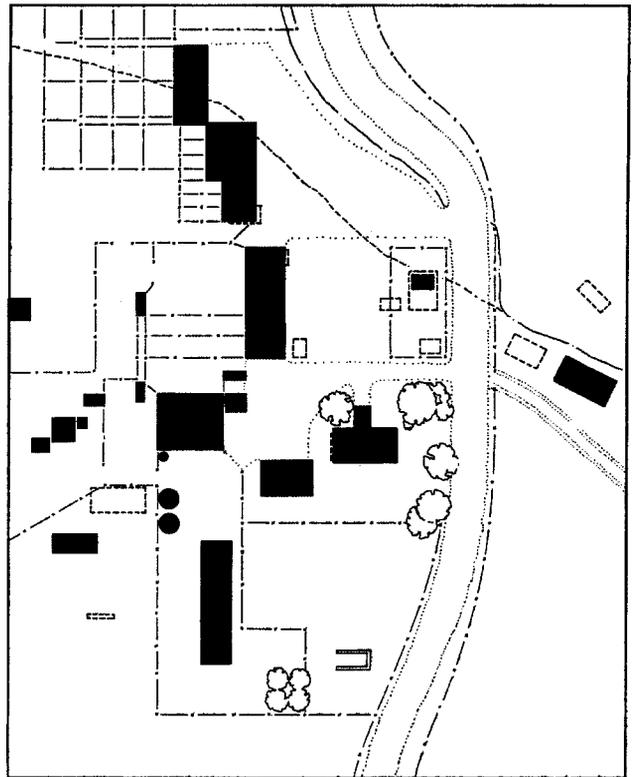
**1890** Site 1: Site plan reconstructed from family stories



**1930** Site 1: Site plan recalled from memory and reconstructed from family stories



**1960** Site 1: Site plan recalled from memory of interview participants



**1997** Site 1: Site plan at the time of the study

2. Mapping of site #1 reconstructed from interviews with family members.  
 Note the similarity of site plan revealed in family memories of the earliest configuration.



3. Constructing and maintaining. The barn roof was mentioned not in terms of its visual form, but in the context of a hired hand who fell off it while reroofing and broke his arm.



4. Working livestock: "Their working corrals for cattle were poorly designed, and it was hard to get cattle to go through it.... All it did was make for thousands of ornery cattle to work, where if somebody would have just built the corrals that would handle cattle more naturally, that would have saved all the years of frustration" (forty-year-old male, third-generation rancher).



5. The sheep shed was understood through the labor of structural repairs, design modifications, and its warmth in winter during the graveyard's lift for lambing season. "There's a lot of really cold days . . . pretty cold . . . At night one nice thing is all the sheep are in the shed, and it's all enclosed and warm in there" (thirty-five-year old female, sheep rancher).

places, they thought and spoke in terms of their physical habits of movement. Haptic perceptions of buildings, livestock, and landscape were accompanied by other sources of informal learning, particularly their memories of significant characters and events. Their localized folklore represents another important aspect of place knowledge that is too involved to discuss here.<sup>30</sup>

The recurring context of the rancher's discussion about buildings was through anecdotes about their construction, modification, painting, reroofing, repairing, cleaning out, or moving. As needs shifted on the ranches, buildings were adapted to new uses. The visual appearance of the structures was rarely mentioned; instead, ranchers focused on highly tactile, kinesthetic, and somesthetic qualities of how the buildings were constructed, how much effort it took, how it felt to do that work, and who got hurt. (See Figure 3.) They also expressed satisfaction or dissatisfaction with the performance of structures, or the suitability of certain buildings for specific methods of operation (Figure 4).

Ranchers were constantly involved in the maintenance and adaptation of buildings to keep them operational and up to date with changing needs, and they understood the structures largely in terms of this labor. The sheep shed in Figure 5 was described by the labor of replacement of its rotted structure, by the enlargement of the end doors to accommodate larger tractors to clean it out, and by how warm it was on long winter nights, while tending two hundred lambing sheep. The nature of their contact with structures and fences cultivated an intimate tactile knowledge of materials, form, construction details, and structural soundness. One rancher's comment reflects the intimacy with which he shaped his space: "There's a little bit of you in every fence post, every staple that you drive, every nail that you put in . . . everything that you do is a little part of you."<sup>31</sup> Their participation enabled them to know the place in ways that could not be achieved by visual means alone. This finding reinforces Frampton's assertion that the ability of the body to read the environment provides the insider with a localized geographic knowledge.

### Organizational Constancy

Fence work, farming, and caring for cattle required expansive, wide-ranging movement over the landscape and afforded an opportunity to move gradually over the terrain. The character of ground texture underfoot, subtle slopes of terrain, or variations in the vegetation that brushed against the jeans became familiar identifying features, giving specific identity to every part of the rancher's landscape. The shape and nature of the ground under their feet became familiar through tactile sensibilities that required locomotion and contact

with the uneven ground. Their constant work with fencing, planting, harvesting, irrigating, and feeding and handling livestock provided many opportunities for repeated action through which to know the topography, vegetation, and soil conditions. Through diurnal and seasonal activities across the terrain, the ranchers developed a time-space routine that changed relatively little over time. The habits and spatial patterns of their everyday life and livelihood became rooted in a particular place that they knew intimately and subconsciously.

The placement of fences and gates that divided pastures and corrals defined the way in which the ranchers traversed the landscape spatially, and the way in which they moved their stock. Those who reconstructed and reconfigured corral fences were reshaping their space to accommodate a shifting spatial need that they understood and determined through how they contained and worked their livestock. Working corrals changed surprisingly little over time, with substantive changes in scale rather than in position or configuration.

When site plans were reconstructed from the families' descriptions of former building arrangements and compared with present plans, they reflected a considerable degree of similarity in general organization (Figure 2). Organizational constancy was reflected over approximately a hundred years on each site, while multiple buildings had been demolished, moved, changed, or built, and surrounding land had been bought, sold, condemned by the railroad, and often reacquired. Persistence in circulation patterns between buildings, corrals, and pastures tended to be retained through generations, even when the buildings themselves were being changed over time.

Several factors may explain the organizational stability of their space, for example, operational constancy: the families were still raising and working cattle or sheep, which they had done in previous generations. Additionally, growth and change on the ranches had occurred incrementally, so there was less opportunity for radical shifts in the spatial organization and orientation of buildings. However, the continuity of site plan organization also suggests a similarity of each family member's cognitive map formed by subconscious time-space routines that spanned generations.<sup>32</sup>

Historical stability of the general site organization may reflect a profound effect of haptic understanding. In a farmstead that changed incrementally over several generations, building by building, it is possible that people subconsciously chose to retain their habitual patterns of movement, or time-space routines (Figure 6). Although the original reasons for siting buildings in a particular location or orientation may have been forgotten, ranchers may have placed new buildings, fences, and gates in familiar locations (in other words, they *re-placed* them). Similar circulation patterns on the



6. Loose feed was stored in this location for about fifty years before these grain bins were built. Organizational constancy in site plan may reflect operational constancy or the incremental character of change, but generational time-space routines may account for preferences in spatial choices that ranchers made in siting new buildings.



7. Dairy barn (formerly the workhorse barn), chicken shed, and dwelling formed three sides of a domestic yard that was historically frequented by trips from the dwelling to milk cows, feed horses, harness teams, or collect eggs. This yard was retained as a pedestrian space, whereas other yard space had been given over to vehicular use.



8. A fifty-year-old rancher thought about the disused hay loft in terms of childhood antics, like jumping from the second-story hay mow door, daring his younger brother to do the same, and laying in the hay in the open doorway shooting ducks for dinner.

farmstead persisting through generations reinforce David Seamon's concept of *place-ballet* as part of an integrated pattern of life that in itself defines the place.<sup>33</sup> (See Figure 7.) Although this finding may reflect only a collective memory of spatial stability rather than a historic reality, it suggests that the individual and family shared a cognitive map of the locality that was persuasively durable.

## The Pathic Mode

Childhood experiences in the landscape represented an important phase of highly tactile and kinesthetic place learning. Every family member who grew up on their ranch expressed fundamental early experiences that they felt had deeply influenced their understanding and sentiment for the place. A rancher who was eighty-eight years old recalled the exact route and incline of a hillside trail leading to an old orchard, where she used to ride her pony to pick cherries as a ten-year-old. A rancher in his fifties remembered jumping into a particular bend of the creek as a boy and floating downstream to a point where the stream almost doubled back on itself, where he would climb out, cross the isthmus, and jump back in the creek upstream. The memory of place-specific, haptic experiences in childhood and adolescence formed vivid and deeply felt attachments for the land and locality (Figure 8). These unself-conscious, phenomenal experiences of the body informed the ways in which they considered the geography in adulthood.

By drawing upon the expertise and experiences of the ranchers, the study showed that, in this rural setting, a pathic mode of perception was fundamental to topistic understanding. Ranchers based their place knowledge on a history of unself-conscious playful and practical experiences that were fundamentally participatory and kinesthetic, and in which visual perception and aesthetics did not play a prominent role. The palimpsest of the continuously evolving farm site highlighted the stability of ranchers' habitual movements and circulation patterns.<sup>34</sup>

## Pedagogical Implications

Knowing a place involves a wide range of sensibilities, many of which are unselfconsciously experienced. Haptically derived understandings of place are, by their nature, dynamic and continuously evolving. They are sensations that are subtle or ordinary in nature. Built up over time, these experiences formulate deep-rooted comprehension that helps define an individual's sense of a place.

It is helpful for the designer to understand the modes of perception and learning that give people the information they care about in a particular setting. Surrounding every new architectural site is an environment that a community understands in particular ways, and interventions may have a positive or negative impact on local topistic sentiment. For this reason, design students need to learn how to discern and consider the salient nonvisual aspects of a particular site and context. Planners, environmental designers, and

design students can acquire a better understanding of what is important to people who feel a connection to their surroundings, and how they develop their topistic sentiment by examining the perceptual and place-learning patterns of various individuals and populations. Case studies of other groups in entirely different contexts may begin to highlight learning patterns that can be generalized within specific population groups. Provided with this knowledge, the designer is better equipped to consider the qualities of places that people will respond to, and will grow to care about deeply.

Understanding of place is evolved through a combination of individual and collective experiences, through active engagement, memories, and stories. It is difficult to study the learning process of environmental perception, because so much of it is intuitive. It is important for designers, however, to understand how the phenomenon of selective attention affects widely differing sentiments and priorities.<sup>35</sup> The role of cultural, subcultural, or individual frameworks in our perception and understanding has significant implications for spatial design education.<sup>36</sup> Institutions of higher learning in design tend to unconsciously inculcate a professional culture that simplifies the pedagogical challenges presented by diversity.<sup>37</sup> Unwittingly, the teaching and learning process of the design studio may completely override a variety of culturally or individually based perceptual characteristics that might otherwise enrich and personalize students' design work.

The design and programming processes become far more complicated by introducing the opportunity to develop awareness of individualized haptic and somatic sensibilities. One of the challenges, for example, is empowering the student to investigate and assert some of his or her personal intuitive place-learning experiences, and allowing each to be an expert of sorts in recognizing their own topistic learning patterns as a resource. The instructor, of course, loses authority and expertise over these individualized explorations.<sup>38</sup>

Another complication is the need to separate the student's own sensibilities and awareness from the population for whom they are designing.<sup>39</sup> A wider range of topistic learning can be gained by providing students greater opportunity to learn about differing experience in space related to cultural experiences and interactions with the physical environment, as well as recognizing the diversity of experience due to age, health, gender, or body size. An important implication of this work is that "theoretical" projects are not the best medium for learning to design meaningful places. Students require learning experience with real sites and real people whenever possible.

Communication of design proposals for tactile or movement-related experience presents new complexities for representation in the typical design studio. Design elements concerning these forms

of experience are subtle or small scale and are not readily evident in static drawings. One could make an argument for plan, section, and interior perspective as drawings that more readily illustrate human occupancy, movement, and tactile experience than do elevation and conventional modeling. Of course, any images with the untidy signs of inhabitation will help to suggest and assess how people use spaces that we propose or build. Highly textured animations or walkthroughs constructed from three-dimensional computer models of interior and exterior spaces hold great promise for increasing our ability as designers to develop and study mobile experience in space, and adept students are beginning to seize this opportunity.

While striving to regain a lost sense of identity in places, and in place making, we have tended to limit our search to the visual biases of the design disciplines. We have made assumptions about the constituent elements of places, guided by what our discipline has traditionally taught us how to do best. By cultivating awareness of a range of haptic sensibilities and placing appropriate emphasis upon them, designers can more appropriately consider how insiders really experience places. Through a widening of disciplinary boundaries, perhaps we will come to a richer understanding of place identity in the contested terrain of development.

## Notes

1. Kent Bloomer and Charles Moore point out the designer's overemphasis on visual understanding of the built environment and discuss the character of other forms of environmental perception. Few environmental designers have pursued this topic, perhaps precisely because it tends to fall outside the largely visual expertise of the design professions. *Body, Memory, and Architecture* (New Haven, CT: Yale University Press, 1977), p. 49.

2. Kenneth Frampton, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance," in Hal Foster, ed., *The Anti-Aesthetic. Essays on Postmodern Culture* (Port Townsend, WA: Bay Press, 1983), p. 28.

3. Anne Hyde discusses the cultural biases of history paradigms and illustrates, for example, the socioeconomic dynamics that led to the development of mythologized perspectives of the past in the American West. Anne Hyde, "Cultural Filters: The Significance of Perception in the History of the American West," *The Western Historical Quarterly* (Aug., 1993): 351–374.

4. Donlyn Lyndon and Charles W. Moore, *Chambers for a Memory Palace* (Cambridge, MA: MIT Press, 1994), p. xiii.

5. Eugene V. Walter describes *topistic* as an adjective associated with *place*, as *spatial* is associated with *space*. The term might be thought of as *placial*. *Placeways: A Theory of the Human Environment* (Chapel Hill: University of North Carolina, 1988), p. 20.

6. When Jean Piaget and Baerbel Inhelder introduced the term *haptic perception* to the study of environmental perception in 1956, they revealed a holistic way of considering our experiences in the physical environment. *The Child's Conception of Space* (London: Routledge and K. Paul, 1956).

7. Tony Hiss, *The Experience of Place* (New York: Vintage Books, 1991 (1990)), p. 3.
8. James J. Gibson, *The Senses Considered as Perceptual Systems* (Boston: Houghton-Mifflin Co., 1966).
9. Ibid.
10. Edwin Boring distinguishes between somesthesia and kinaesthesia. *The Physical Dimension of Consciousness* (New York: Dover, 1963 (1933)).
11. Physical educator, Eleanor Metheny asks, "Does anyone really believe that there is no continuity between the complex processes of sensation, perception, feeling, emotion, thought, and action?" *Moving and Knowing* (Los Angeles: Peek, 1975), p. 96.
12. Erwin W. Straus, "The Forms of Spatiality," in Erling Eng, trans., *Selected Papers of Erwin W. Straus: Phenomenological Psychology* (New York: Basic Books, 1966), p. 11.
13. The basic orienting system includes the sense of balance, postural sense, and auditory cues. Bloomer and Moore, *Body, Memory, and Architecture*, p. 33.
14. Kraft Von Maltzahn, *Nature as Landscape: Dwelling and Understanding* (Montreal: McGill-Queen's University Press, 1994), p. 79.
15. David Seamon, "Body-Subject, Time-Space Routines, and Place Ballets," in Anne Buttimer and David Seamon, eds., *The Human Experience of Space and Place* (London: Croom Helm, 1980), pp. 157–158.
16. Yi-Fu Tuan, *Topophilia: A Study of Environmental Perception, Attitudes, and Values* (Englewood Cliffs, NJ: Prentice Hall, Inc. 1974); Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis, University of Minnesota, 1997).
17. Paul Rodaway, *Sensuous Geographies: Body, Sense and Place* (London: Routledge, 1994), p. 54.
18. Von Maltzahn uses the example of the farmer whose acts may all be directed toward his goal of harvesting a successful crop. All of his movements then are embedded with an unconscious intentionality that contributes to the nature and shape of the landscape produced. *Nature as Landscape*, p. 80.
19. For a discussion of learning styles, see Malcom Knowles, *The Modern Practice of Adult Education* (Chicago: Follet, 1980) and Howard Gardner, *States of Mind: The Theory of Multiple Intelligences* (New York: Basic Books, 1983).
20. Rodaway, *Sensuous Geographies*, p. 60.
21. Máire O'Neill, *Learning Rural Perceptions of Place: Farms and Ranches in Southwest Montana* Doctoral dissertation (Bozeman: Montana State University, 1997).
22. The cultural anthropology model is described in detail by James Spradley and David McCurdy, *The Cultural Experience: Ethnography in Complex Society* (Chicago: Science Research Associates, 1972).
23. The method tailored for this project is presented in a paper by the author, "The Space on the Edge: Dichotomous Perceptions of Place" in Hemalata Dandekar, ed., *City Space & Globalization: An International Perspective* (Ann Arbor, MI: University of Michigan, 1998), pp. 256–264. As a form of in-depth site analysis, it is an adaptation of the ethnographic method described by Spradley and McCurdy in *The Cultural Experience*.
24. Wm. J. McKeachie, "Psychology and Adult Cognition," in Robert A. Fellenz, ed., *Cognition and the Adult Learner* (Bozeman, MT: Center for Adult Learning research, Montana, State University, 1988).
25. The naturalistic inquiry methodology allowing categories of analysis to emerge during data collection is discussed by Egon Guba, *Toward a Methodology of Naturalistic Inquiry in Educational Evaluation* (Los Angeles: University of California, 1978).
26. See O'Neill, "The Space on the Edge," for a detailed methodology developed by the author for the recording and analysis of perceptual modes from extensive interviews.
27. O'Neill, *Learning Rural Perceptions of Place*, p. 172.
28. The author describes and illustrates the method developed for comparison of site plans in "The Space on the Edge," pp. 257–263.
29. Tuan, *Topophilia*.
30. Details of the study of the impact of local folklore on understanding place is presented in papers by the author: O'Neill, *Learning Rural Perceptions*, p. 191–213; O'Neill, "People, Memory, and Haptic Experience: Topistic Learning Patterns in Montana," an unpublished paper presented at J. B. Jackson and American Landscape Conference, School of Architecture, University of New Mexico, Albuquerque, Oct. 1998.
31. Quote from a rancher in O'Neill, *Learning Rural Perceptions of Place*, p. 219.
32. *Cognitive map*, a term from psychology and learning theory, refers to a subconscious mental organization system by which individuals order their understanding. In this use, it refers literally to a spatial map of geographic information.
33. Seamon, "Body-Subject, Time-Space Routines, and Place Ballets."
34. *Palimpsest* is a term adopted by the discipline of historical geography, referring to the barely discernable traces of former occupation and structures on a landscape. It literally means "a written document, typically on vellum or parchment, that has been written upon several times, often with remnants of earlier, imperfectly erased writing still visible, remnants of this kind being a major source for the recovery of lost literary works of classical antiquity." William Morris, ed., *American Heritage Dictionary* (Boston: Houghton Mifflin Co., 1978), p. 944.
35. Wm. J. McKeachie, "Psychology and Adult Cognition."
36. The widely ranging results of an architectural aesthetics study by Phil Hubbard point to the challenges of subjectivity and lack of universality in interpreting the built environment. "Conflicting Interpretations of Architecture: An Empirical Investigation," *Journal of Environmental Psychology*, 16 (1996): 75–92.
37. Setha Low, "Professional Culture: The Boundary Between Theory and Practice in Design," paper presented at the Annual Meeting of the American Anthropological Association, Los Angeles, CA., Dec. 1981.
38. Donald Schoen emphasizes the appropriateness of the architectural design studio for individualized exploration, where the instructor is not always the expert, but instead guides a discovery process. He stresses the appropriateness of the design studio teaching and learning format for highly individualized decision making, and for nonlinear critical reasoning in the problem-solving process. *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions* (San Francisco: Jossey-Bass, 1987).
39. Spradley and McCurdy claimed "the single greatest challenge in teaching undergraduates was to help them become aware of their own ethnocentrism as well as other people's cultural perspectives." *The Cultural Experience*, p. vii.