

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."¹ 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."² 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. The visible elements of places "in themselves are of little significance; it is the way they act to structure our experiences that affects us."⁴ 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.⁵ 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.⁶ 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 environment 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.⁷ 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.⁸ 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.⁹ Psychologist Edwin Boring recognized the sensibility of the body to itself, which he termed somesthesia.¹⁰ 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.¹¹ Somesthetic 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.¹² The gnostic mode consists of "looking at" objects as distinct from the self, and deals with cognition of the object. In this sense the sense of place is grounded in the participatory quality of haptic geography.¹⁷ 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."¹⁸ 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.¹⁹ 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."²⁰

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? 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."¹⁴ 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.¹⁵ 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." It is important for designers, however, to understand how the phenomenon of selective attention affects widely differing sentiments and priorities.³⁵ The role of cultural, subcultural, or individual frame-works in our perception and understanding has significant implications for spatial design education.³⁶ Institutions of higher learning in design tend to unconsciously inculcate a professional culture that simplifies the pedagogical challenges presented by diversity.³⁷ 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. 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.¹⁶ 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 . This produced a perceived historical geography that was compared with the existing site plans.²⁸ (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.²⁹ As ranchers talked about their places, they thought and spoke in terms of their physical habits of movement. This discussion summarizes the primary findings from the larger study.²¹ A cultural anthropology research model provided a means to glean perspectives of the place from individual occupants.²² Like an ethnography, the study made extensive use of cultural informants combined with photography and mapping techniques.²³ Two generations of three families were interviewed on their ranches. The instructor, of course, loses authority and expertise over these individualized explorations.³⁸ Another complication is the need to separate the student's own sensibilities and awareness from the population for whom they are designing.³⁹ 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. 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. 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.³ If we accept the notion of critical regionalism we must seriously consider aspects of experience in space that are nonvisual. The palimpsest of the continuously evolving farm site highlighted the stability of ranchers' habitual movements and circulation patterns.³⁴ Pedagogical Implications Knowing a place involves a wide range of sensibilities, many of which are unselfconsciously experienced. 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. However, the continuity of site plan organization also suggests a

similarity of each family member's cognitive map formed by sub-conscious time-space routines that spanned generations.³² Historical stability of the general site organization may reflect a profound effect of haptic understanding. Lyndon and Moore are addressing sensibilities beyond visual aesthetics, derived from moving through spaces, engaging with them, and having memorable experiences in 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.¹³ The concept of haptic and somatic systems has changed the way in which environmental psychologists think about spatial knowledge. 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.³⁰ The recurring context of the rancher's discussion about buildings was through anecdotes about their construction, modification, painting, reroofing, repairing, cleaning out, or moving. 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. 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 re-acquired. 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. Having previously placed its primary emphasis on visual knowledge and perception, the focus of spatial understanding has shifted to a tactile and positional awareness. Categories for analysis emerged as the study evolved,²⁵ 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.²⁶ 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. 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. 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. 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. 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. 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 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. 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 lamb- ing sheep. Those who reconstructed and reconfigured corral fences were reshaping their space to accommodate a shifting spatial need that they under- stood and determined through how they contained and worked their livestock. Persistence in circulation patterns between buildings, cor- rals, and pastures tended to be retained through generations, even when the buildings themselves were being changed over time. In a farmstead that changed incrementally over several generations, building by build- ing, it is possible that people subconsciously chose to retain their habitual patterns of movement, or time- space routines (Figure 6). By drawing upon the expertise and experiences of the ranch- ers, the study showed that, in this rural setting, a pathic mode of perception was fundamental to topistic understanding. The design and programming processes become far more com- plicated by introducing the opportunity to develop awareness of in- dividualized haptic and somatic sensibilities. The pathic mode guides our per- ception in touching, and places emphasis on preconceptual phe- nomenal experiences, and the changing ways in which things appear directly to the senses as we move through space. As third- to fifth- generation residents of the community, family mem- bers offered rich and varied descriptions of locality through exten- sive open- ended interviews. This is known as se- lective attention.²⁴ 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. We took out every other one, so I reinforced [the beams] and set posts that go down about three feet.²⁷ The verbs buried, cleaned, replaced, took out, reinforced, and set all in- dicated acts of work and physical activity, which suggest a haptic mode of perception. The nature of their contact with structures and fences cultivated an intimate tactile knowledge of materials, form, construc- tion details, and structural soundness. One rancher's comment re- flects 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."³¹ 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 environ- ment provides the insider with a localized geographic knowledge. Similar circulation patterns on the The Pathic Mode Childhood experiences in the landscape represented an important phase of highly tactile and kinesthetic place learning. 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. The interview transcripts were scrutinized in detail to determine by what modes of perception and understanding people were think- ing about, recalling, and describing their space. 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. (See Figure 3.) They also expressed satisfaction or dissatisfaction with the per- formance of structures, or the suitability of certain buildings for specific methods of

operation (Figure 4). Through diurnal and seasonal activities across the terrain, the ranchers developed a time-space routine that changed relatively little 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. 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). 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). The circumstances generating these themes create experientially memorable places for the individual. A study of ranching families in the Gallatin Valley in southwest Montana provides further evidence of the importance of haptic learning in understanding space. Participants were asked open-ended questions about the entire environment of their ranches, with the boundaries being defined by ownership or grazing rights. 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 habits and spatial patterns of their everyday life and livelihood became rooted in a particular place that they knew intimately and subconsciously. 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). 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. Case studies of other groups in entirely different contexts may begin to highlight learning patterns that can be generalized within specific population groups. Haptically derived understandings of place are, by their nature, dynamic and continuously evolving. Built up over time, these experiences formulate deep-rooted comprehension that helps define an individual's sense of a place. Through unconscious 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. People gain environmental understanding 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. Three case studies were used to determine the types of topistic experience that people in a rural environment drew from to understand their locale. Questions were intended to initiate a monologue that allowed participants to consider the buildings and landscape in their own terms. 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. The ranchers discussed their places in terms of events from ordinary daily experiences or from extraordinary family anecdotes. These unself-conscious, phenomenal experiences of the body informed the ways in which they considered the geography in adulthood. 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. Understanding of place is evolved through a combination of individual and collective experiences, through active engagement, memories, and stories. 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. People were asked to describe the buildings, for example, and how they sat in relation to the larger landscape. The verbs and adjectives thus suggested how understanding was accumulated. 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. As needs shifted on the ranches, buildings were adapted to new uses. The shape and nature of the ground under their feet became familiar through tactile sensibilities that required locomotion and contact with the uneven ground. Working corrals changed surprisingly little over time, with substantive changes in scale rather than in position or configuration. 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. There were gaps under the posts where the ends had rotted away. It is difficult to study the learning process of environmental perception, because so much of it is intuitive. We replaced all the posts inside. 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. They are sensations that are subtle or ordinary in nature... So when we cleaned the place out