

Creation of Place

Wayfinding as a Metaphor for Design

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by Jeff Howard

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Preface

I would like to thank Richard Buchanan for encouraging me to explore, and Harlan, Phi-Hong, Elizabeth, Miso, Ashwini and Chun-Yi for helping me to find my way.

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Abstract

In my thesis essay, I focus on three key aspects of wayfinding design: place, exploration and understanding. In traditional wayfinding practice, we understand a place by exploring it, by being there. I'm interested in how this occurs. How does an exploration of place lead to understanding? With this question in mind, I investigate the distinction between place and space, and between exploration and discovery. I also articulate four levels of understanding as they apply to the human experience, and suggest ways in which place, exploration and understanding are actually interconnected concepts. Ultimately, I explore the potential for wayfinding to stand as a metaphor for Design itself.

I GREW UP ON THE OUTSKIRTS of a small town in rural Missouri. With fewer than 1500 citizens, the town boasted two grocery stores, one bank and an affable town drunk that everyone knew as “the whistler.” The city grew slowly during my childhood. The impression of change was difficult to detect, but as restaurants opened and closed and businesses thrived or faltered, they each left their mark on the rich texture of the community. The people in my hometown were an enduring feature. Most of my friends were born there, and their parents and grandparents before them. My family moved to Dixon when I was three years old. They selected the town precisely because it was small, safe and insular, the perfect place to raise a traditional midwestern family.

I never considered my relationship with this place while I was growing up. Dixon was simply my home and had been for as long as I could remember. Although we lived several miles outside the city limits, I felt connected to the town. I enjoyed exploring its bustling streets during fall festival and marching with the band on desolate winter mornings. I enjoyed the novelty of climbing along the railroad tracks behind the school and exploring the woods that surrounded my home. On trips into town with my parents, I could close my eyes and mark my arrival by the subtle curve of the highway at one end of Dixon or the series of repeating hills at the other. Over the years, I grew to understand my hometown in a way that seemed almost effortless.

College forced me to consider how I make sense of a strange place. I had traveled with my family before, of course, but those experiences had always been fleeting and passive. My freshman year allowed me to see my world with new eyes. Everywhere I looked, my observations were at the surface, divorced from the history and character of place that had always given my home meaning. It took some time to overcome this disorientation, but over the next four years of college I came to love the sense of discovery that comes with learning

a new city—of stumbling across an amazing coffee house or a secluded park. As I learned to cope with traffic, I found myself connecting the dots to form a more coherent whole. First on foot, then gradually by bicycle and finally by car, a city one hundred times the size of Dixon became my home.

As I moved on from Springfield to Kansas City and later to Pittsburgh, my confidence in mastering my environment grew. As I made the long trip from Missouri to Pennsylvania, I was awed by the realization that it must be routine for people to completely uproot themselves and build new connections all around the world. This is still a new phenomenon for me. I'm fascinated by how we build these connections. Not just the mechanical process of finding our way from point to point. What interests me is a more fundamental question. What does it mean to really *know* a place? How do we develop a deeper understanding? How do we belong? The discipline of wayfinding design seeks to answer these questions. Established nearly forty years ago, the concept of “way-finding” was coined by Kevin Lynch in his seminal book *The Image of the City*. Lynch was among the first to codify the strategies that govern how we relate to our environment. He found that although our frameworks evolve naturally, they can be developed and encouraged by design.

In this paper, I view wayfinding as the connection between three overlapping concepts, those of “place,” “exploration” and “understanding.” In traditional wayfinding language, we understand a place by exploring it; by being there. The longer we live in a place, the better we come to understand it. That understanding can be just below the surface of comprehension, as my experience growing up in Dixon reflects. It can also be active, as I learned during my years moving between Springfield, Kansas City and Pittsburgh. For each of the cities I've called home, I've grown to understand the nature of the place over time. As Lynch documented, this is natural and unremarkable. But what if we view the concept of place as more than just a physical location? What if we reframe it

as something more fundamental? The strategies by which we find our way in the environment closely mirror the strategies by which we find our way in design. Long viewed as the province of city-planners and environmental psychologists, I increasingly view the art of wayfinding as a metaphor for Design itself. In this essay, I intend to investigate that relationship. Can an exploration of place lead to a deeper understanding of what it means to be a designer?

I begin by investigating the three key aspects of wayfinding: “place,” “exploration,” and “understanding.” In the first section of my essay, I address the concept of “place” through the writings of the cultural geographer Yi-Fu Tuan in *Space and Place*. In the second section, I turn to the work of Daniel Boorstin, historian and former Librarian of Congress, who has written at length on the concept of “exploration” in a series of books that include *The Discoverers*, *The Seekers*, and *The Exploring Spirit*. In the third section, I focus on the concept of “understanding” itself through Spinoza’s philosophic treatise from *The Ethics*, “On the Improvement of the Understanding.” Finally, I turn to the writings of Malcolm McCullough in *Digital Ground* for an analysis of the impact of place, exploration and understanding on the practice of interaction design.

Place

In *The Poetics of Space*, Gaston Bachelard observes that “inside and outside form a dialectic of division” [211]. Here and there. Refuge and prospect. Estate and range. These ideas occur in human cultures throughout the world and have deep historical resonance. The cultural geographer Yi-Fu Tuan refers to this dialectic as “space and place.” His exploration of the relationship between these concepts forms the basis for my understanding.

We often confuse the idea of place with that of location, but for our purposes it is important to observe a distinction. Places often happen to be physical locations, but physicality is not inherent in the concept. Tuan views “place” more simply as a value proposition; at its most basic level “an organized world of meaning” [Tuan 179]. Just as our environment represents a selected perspective on the world around us, places are what we choose to value within that environment. This idea of value is central to Tuan’s articulation of place. Compare this with space. Place requires space for definition. There can be no here without a there. No inside without an outside. “From the security and stability of place we are aware of the openness, freedom, and threat of space” [6]. Space is more abstract than place. What begins as undifferentiated space only becomes place as we get to know it better and endow it with value [12].

Space is the world opening up around us and extending to the horizon. As an infant, we begin with no distinction between space and place. Such an understanding requires mobility, and an ability to experience the world through kinesthesia, sight and touch. We begin to perceive objects in space; some things are within reach and can be easily explored, others reside in the distance and require effort to move toward them. This network of objects and our movement toward and away begins to define space [12]. Nomadic tribes measure the space between campsites not in miles or kilometers, but by the number of “sleeps” required for the journey. This idea of effort is reflected in other folk measures. The yard is a stride; a mile is a thousand strides. The furlong is the stretch that a plow team can easily pull. Human effort in space is reflected in such ideas as a “stone’s throw” or “shouting distance.” These are as much kinesthetic as mental constructs. “A pace is more than the span between one foot and another—it is felt in the muscles” [45]. Space is understood through direct experience, but based on extrapolation from our past experiences we can understand spaces beyond our immediate perception. Consider the ocean. It is too large to be comprehended directly. William James writes “we think of the ocean as a whole by multiplying mentally the impression we get at any one moment when at sea.” Thus we understand even vast notions of space by mentally reducing them to human terms [16].

This Euclidean investigation of space and vastness helps to illuminate the fundamental conceptual difference between space and place. Space is characterized by the unknown, the unexperienced, the unfamiliar. In contrast, place is a world of meaning—the familiar that is fashioned out of the unfamiliar. The methods by which we understand and define space are common across cultures. It begins with the human body. Protagoras wrote that “man is the measure of all things.” Space is oriented around the body. Beginning with the infant’s distinction of upright and prone, we gradually develop the ideas of front and back,

high and low, near and far. We impose this spatial schema on our environment. Tuan asserts that people everywhere view their home as the center of the world. The ancient Chinese developed a concept of *the oikoumene*, or habitable world, that put them at the center not just metaphorically but geographically as well [Boorstin 200]. The island of Tikopia is only three miles long. Its islanders once doubted whether any land existed from which the sound of ocean waves could not be heard [Tuan 54]. Before we scoff, we have only to recall that even with increased geographic sophistication, people everywhere long viewed the earth as the center of the universe.

Although such literal views of a geographic “center” seem quaint, the metaphor that lies at their heart is critical for an understanding of the development of place. The view of one’s homeland as the center of the world arises from our direct experience with that environment. The geographic isolation of ancient cultures influenced their worldview. Human ideas of space have become more comprehensive as our understanding of the world has expanded, but even when we know that lands exist beyond our own, they remain conceptual and distant. A *there* that pales in comparison to the *here* of the immediate and tactile. The concreteness of our reality depends on our personal familiarity with space. Over time, we endow areas with definition and meaning. This is the gradual transformation of space into place [136].

Places are defined by centers of value. Tuan believes that “there is far more to experience than those elements we choose to attend to” [148]. Our awareness is thus deeply personal. What may be “place” for one can exist as undifferentiated “space” for another. Consider the move to a new city. We begin by identifying it as a destination, a goal. At this instant, the city becomes a conceptual place. It immediately stands apart from the multitude of potential places we did not select. This transformation is a matter of perception, since the city has not

actually changed. Instead, our attention creates a place, barely on the cusp of space. It is quite different from the place understood by lifelong residents of the city, but it is clearly on the same continuum. Once we move into the city, our experiences begin to color our perception. The city remains a place, but also becomes a space for the development of progressively more discrete places. We identify a patchwork of districts within the city; each district is a place. We select one district to live, elevating its status in our mind. The street where we live becomes more familiar than the other networks that comprise the space of our neighborhood. Finally, our own house stands apart from the undifferentiated rows of buildings along the space of our street. Over time, our house becomes more and more place-like; eventually, it becomes a home.

Tuan observes that although concepts of place are personal, they are not necessarily private. That is, the things we choose to articulate as place are influenced in large part by aspects of culture. “Hearth, shelter, home or home base are intimate places for humans everywhere” [147]. Others have similar experiences that leave them with similar values. For instance, a park within the city is a shared place. A favorite park bench may be cultivated by experience into an intensely personal place, and although a casual visitor may not have the same relationship with the bench, they undoubtedly recall a similar relationship from their own experience, and can easily understand the bench’s potential as a place [147]. This shared understanding is what allows us to use the example of the city as a framework. Although we come from different backgrounds, we all have some idea of what it means to learn a new place. Human patterns of settlement are predictable enough that we can speak of the concept of a park and be reasonably certain that the meaning carries enough common ground to be understandable.

The example of the city illustrates three kinds of place, each of which arise from a different way of knowing the city. These ways of knowing are explored by Spinoza in his work “On the Improvement of the Understanding.” At the outset, when the city is only a goal, it lacks the weight of reality. We know it only from the outside, based on what we have read or heard from others. This type of conceptual place is based on imagination and opinion, and represents the shallowest type of understanding in Spinoza’s system. As we begin to experience the city, we use reason to understand the place. The park is initially understood as a “type” based on our past experiences with similar parks. Much of our understanding of the practical aspects of place is formed in this way. Only as we become thoroughly familiar with a city do we finally understand that Spinoza regards as the *essence* of place.

Spinoza’s system for investigating the concept of understanding provides another way of approaching the concept of place. Consider Spinoza’s subject matter, “understanding,” as space. Within this problem space of the unknown, he carves out several avenues of meaning that represent discrete areas of the known. The intersection of these ideas into a formal system recalls Lynch’s geographic concept of a “node.” If we remember that place is an organized world of meaning, then the idea of a system itself qualifies as a place.

If space represents the world of the unknown and place represents that of the known, what lies between the two? The historian Daniel Boorstin has written at length about the exploration of the unknown and the search for knowledge that characterizes the transformation from space to place. In *The Exploring Spirit*, he introduces the concept of a “verge.”

“A verge, in my vocabulary of world history, is a boundary between anything and anything else—including, of course, the boundary between the known and the unknown, the familiar and the strange. This is the place where new ideas and new institutions

grow, where new opportunities appear, where commerce in products and thought can flourish. A verge is a kind of landscape—of the earth or of the mind—that makes every man and woman willy-nilly into an explorer” [17].

We create new places out the strange, not the familiar. Tuan notes that in time, we become accustomed to a place and take it more and more for granted [Tuan 184]. This atrophies our ability to make new places, or even to truly appreciate our current place. Only by venturing back into the strange can we see a place from the outside and reflect on our experience.

Exploration

On its face, the concept of “exploration” is a simple proposition. A trip to any dictionary reveals the accepted definition “to search into or travel in for the purpose of discovery... especially of geographical discovery [American Heritage 2000].” We have all had experiences in a strange place, for example, looking for a connecting flight at the airport, or our hotel in an unfamiliar city. But while most dictionaries allude to the process of “discovery” in their definitions of exploration, they fail to capture an important distinction between the terms. This distinction is fertile ground for understanding. Daniel Boorstin makes the case in *The Exploring Spirit* that exploration is a fundamentally different enterprise from discovery, and one that requires a quite different perspective.

“The crucial distinction between these two roles we can see in the origins of our English words. The etymology of the word “discover” is obvious. Its primary meaning is to uncover, or to disclose to view. The discoverer, then, is a finder. He shows us what he already knew was there... The word “explore” has quite different connotations. Appropriately, too, it has a disputed etymology. Some say it comes from ex (out) and plorare (from pluerre, to flow). Either etymology reminds us that the explorer is one who surprises (and so makes people cry out) or one who makes new knowledge flow out.”

“The discoverer simply uncovers, but the explorer opens. The discoverer concludes a search; he is a finder. The explorer begins a search; he is a seeker. And he opens the way for other seekers” [Boorstin 6].

The crucial distinction seems to be that of having a known goal. For example, even in a strange city, there is a profound difference between the process of looking for lodging and that of finding a specific hotel. Knowing that a destination exists with prearranged reservations for eventual discovery constrains our outlook. A more subtle proposition is that of “seeking,” a critical component of exploration for Boorstin. Seeking is a starting point for asking new questions. It is not about finding answers, but about establishing goals specifically devoid of place. For instance, rather than search for a specific hotel, what if we reframe the problem to search for the hotel with the best service? Immediately, the possibilities stretch beyond the present. The search for the best becomes a journey, impossible to complete in a single night and slowly unfolding over time.

Exploration is about embracing the unknown. Acknowledging ignorance and seeking to shed light on our understanding. It is a process of inquiry, the outcome of which is impossible to know in advance. Boorstin views the American experience as the prototype of what he calls “the exploring spirit.” In Boorstin’s calculation, Columbus was a discoverer, not an explorer. He set off to find the westward route to Asia, and he died believing that he had successfully navigated to that destination. His goal was not to explore a new world, but to find his way to the East Indies, a known quantity. He did not have the frame of mind of an explorer. Lewis and Clark were a different matter. While they set off to discover the all-water route to the Pacific, their mindset was also of exploration. Their patron Thomas Jefferson wrote in 1801, “we can no longer say there is nothing new under the sun, for this whole chapter in the history of man is a new

experience.” The Corps of Discovery’s journals reflect a sense of wonder, documenting the myriad of new plants and animals that populated the unknown space of the American continent.

This approach to exploration requires experience in the world. It causes our known environment, what Lynch calls the “image,” to slowly expand. We initially know only the area around our home and office, with a network of places in between such as the grocery store or the gas station. But as time passes, our experiences carry us further and further from the places with which we are familiar. We develop a deeper understanding of the customs of the city and the character of the neighborhoods and districts that surround our home.

Consider the roadside park that we pass on our daily commute. One day, presented with a bit of free time, we decide to take in the sights and sounds of the park. Having long ago marked the location, we gingerly move to a deeper exploration. We note the people and activities in this new place. We admire the beautiful trails for walking and the hillside picnic tables. We note the deserted basketball court and bustling gravel-lined playground. We compare this park to others we have known and file the experience away before leaving with a deeper understanding—a better sense of place.

In contrast to directed exploration, a more tacit endeavor takes place in the periphery, in the day-to-day business of moving around. Tuan describes this as a set of “experiences, mostly fleeting and undramatic, repeated day after day and over the span of years. It is a unique blend of sights, sounds, and smells, a unique harmony of natural and artificial rhythms such as sunrise and sunset, of work and play” [Tuan 183]. This ephemeral sort of exploration is also addressed in Spinoza’s work, “On the Improvement of the Understanding.” In his writing,

he refers to the idea of perception gained through a deeper understanding of essence—what he calls intuition. This corresponds to Tuan’s notion of the *feel* of a place. It is the visceral quality of day-to-day life. Spinoza contrasts direct experience with the quality of perception that arises from “hearsay or from some sign which everyone may name as he pleases.” Hearing about a place, or exploring it on a map is a fundamentally different experience from exploring it in person, devoid of the sights and sounds that contribute to a richer understanding.

This active element of experience is important to consider. A passive exposure results in a distinctly different understanding. Unfortunately, active exposure to the environment is increasingly suppressed by modern technology. Boorstin points out that until about the sixteenth century, most journeys were overland and resulted in encounters with a multitude of new and enriching cultures. These travels were as important for the “ideas, objects, and ways of doing things that were picked up, lost or exchanged” as for the explicit purposes of the journey. As the seafaring age came into its own, humankind was presented with a new opportunity that Boorstin calls the “power to leap.” That is, the power to go directly to raw and strange and distant places without passing through others in between. While this power to leap opened new worlds to discovery, Tuan observes its paradoxical effect on human experience.

“Imagine a man who learns first to ride a bicycle, then to drive a sports car, and eventually to pilot a small aircraft. He makes successive gains in speed; greater and greater distances are overcome. He conquers space but does not nullify its sensible size; on the contrary, space continues to open out for him. But when transportation is a passive experience, conquest of space can mean its diminishment. The speed that gives freedom to man causes him to lose a sense of spaciousness. Think of the jetliner. It crosses the

continent in a few hours, yet its passengers' experience of speed and space is probably less vivid than that of a motorcyclist roaring down a freeway. Passengers have no control over the machine and cannot feel it as an extension of their organic powers" [54].

As the power to leap gradually extended to individual citizens, Boorstin laments that even the automobile is isolating and encapsulating. "The American traveling to work by car is apt to be traveling alone, probably listening to his radio for music or news from some distant center... the vast ocean of superhighways is nearly as free of culture as the sea traversed by the Mayflower Pilgrims" [62]. He contrasts this with travel by rail only a century earlier. "Traveling by train had been a social experience. In the nineteenth century, the characteristic open design of American railroad cars developed out of the Americans' desire to move out an mix with fellow passengers" [61].

Boorstin's emphasis on the social aspect of exploration is important. He reminds us that the environment encompasses much more than just physical location. Five centuries after man first gained the power to leap, exploration is as much about our experiences with new people and ideas as with "raw and strange and distant places."

Understanding

Throughout human history the greatest barrier to understanding has been the illusion of knowledge. The historian Daniel Boorstin writes that “imagination draws in bold strokes, instantly serving hopes and fears, while knowledge advances by slow increments and contradictory witnesses” [86]. Even as mankind progressed from myth and legend to “scientific” principles, understanding continued to be obscured by a dogmatic reverence for those who had come before. The Greek physician Galen championed the search for truth and knowledge; his work reflects an independent spirit of exploration. But his prolific writings on the world of medicine were deeply flawed, and overshadowed the progression of human understanding until well into the Renaissance. Consider the work of Aristotle, whose writings on philosophy are a foundation of Western thought. Despite his formidable accomplishments, he formulated a naïve understanding of the “dynamics” that govern physical motion. For example, through experimentation with a heavy stone he concluded that objects only moved as long as they were pushed. This and other mistaken views of the physical world impeded scientific understanding for centuries as people failed to challenge “the master of those who know.”

The illusion of knowledge is seductive. Boorstin claims that the *feeling* of knowledge is more appealing than knowledge itself. The illusion of knowledge is reflected in the work of medieval mapmakers who confidently represented the world covered one-seventh by water as canonized in the book of Esdras.

Not until the 1500s did geographers begin to reflect a humility in their understanding of the world. Shortly after the voyage of Columbus, maps began to appear with the qualification “all the world which has been discovered up to this time.” Coming on the heels of the discovery of a whole fourth part of the earth, this caption reflects a dawning understanding of the limits of human knowledge and experience.

Newton, whose laws of motion replaced Aristotle’s dynamics, wrote:

“I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me” [87].

Waiting, of course, to be discovered by the Einsteins of a later age.

The move toward a more perfect understanding has been slow. Beginning with Plato’s “justified true belief” in *Theaetetus*, philosophers have wrestled with the definition of knowledge and what we can, in fact, know. Spinoza writes at length on the concept in his preface to *The Ethics*, “On the Improvement of the Understanding.” In his treatise, Spinoza views the improvement of the intellect itself to be a prerequisite for deeper study. He seeks a “purification of the understanding, so that it may apprehend things without error, and in the best possible way” [5].

To do this, Spinoza distinguishes four fundamental types of perception. First, perception arising from “hearsay” or from some sign which everyone may name as he pleases. By this, Spinoza means knowledge which we cannot confirm on our own. His archetype of this type of knowledge is the date of our birth. Since no memories are retained at such an early age we must rely on the word of others for this information. Other examples of this type of understanding might be the names of our great-grandparents, or the identity of the first president of the United States. These are facts we have heard and, as Spinoza notes, “about which we have never felt any doubt” [6].

The second type of perception Spinoza distinguishes is that of “mere experience, that is, from experience not yet classified by the intellect, and only so called because the given event has happened to take place, and we have no contradictory fact to set against it, so that it therefore remains unassailed in our mind.” This encompasses nearly all the practical knowledge of life. Spinoza’s example is the understanding that because he has seen other people die, he too will die. He enumerates other less severe examples including the observation that water extinguishes fire.

Later in *The Ethics*, Spinoza groups these two types of knowledge under the category of “imagination or opinion.” He dismisses both as inadequate forms of understanding. Of the first, we can see from the works of Galen and Aristotle that second-hand information is never certain. Of the second type of information, the “fragmentary perception from the mere suggestions of experience,” Spinoza contends that the results are “uncertain and indefinite.” We can easily conceive situations where our experience might lead to the wrong conclusion. As Boorstin points out in *The Discoverers*, “nothing could be more obvious than that the earth is stable and unmoving, and that we are the center of the universe” [294]. Even the more mundane of Spinoza’s examples of mere experience are

quickly overturned by contrary experiences. Water extinguishes fire, but not all types of fire. We breathe, and correctly assume that others breathe as we do. But although we speak, and observe that others speak as we do, we may be surprised to encounter those who speak entirely different languages.

Spinoza enumerates a third type of understanding, that of “ratiocinative knowledge,” or reason. He describes this as the perception arising when “the essence of one thing is inferred from another thing, but not adequately,” that is, when we gather from some effect its cause. He describes deductive reasoning as “simple ideas, common notions, and the conclusions drawn from them.” As an example of this type of knowledge, Spinoza refers to the common property of vision that causes objects to appear smaller as they recede into the distance. This is a learned property of space, as illustrated by certain rainforest tribes of the Congo who lack such an understanding due to the limited visual range of their environment [Tuan 119]. Spinoza asserts that once we learn this property of vision, we can draw the conclusion that the sun must be larger than it appears, and much farther away.

In evaluating the quality of deductive reason, Spinoza judges it a more adequate understanding than either opinion or imagination, but still short of perfection. For example, although we may understand the sun to be larger than it appears, we are left with an inadequate understanding of exactly how large, or how far away. We can also reason inadequately based on this knowledge. For instance, we observe that our proximity to fire determines the intensity of its radiant heat. We are also taught that the sun is made of fire. From this, we can quite understandably draw the conclusion that the earth must be farther away from the sun in the winter than it is in the summer. This chain of reasoning results in an inadequate understanding of the principle behind the planet’s seasons.

To arrive at an adequate understanding, Spinoza identifies a fourth kind of perception, that of “intuition.” This is an understanding “that arises when a thing is perceived solely through its essence, or through the knowledge of its proximate cause.” Spinoza uses mathematics as an example. By understanding the properties of numbers, we can intuit that two plus three equals five. Or, to use a more complex example, once we are aware of the idea of parallel lines, we can intuit that two lines parallel to a third are parallel to each other without reference to the series of mathematical proofs that govern this behavior. Spinoza admits that this type of understanding is rare. Still, he embraces it as the only sort of understanding that can be had without danger of error. He sets it as an ideal, rather than a pragmatic methodology.

In his disdain for the experiential quality of understanding, Spinoza stands apart from later authors who have explored the concept. Far from dismissing mere experience, both Boorstin and Tuan advocate the direct experience of the world as central to the concept of understanding. They do however agree with Spinoza’s indictment of “hearsay” as a basis for understanding. Tuan, speaking of the understanding of place, asserts that although we may know about a distant location from hearsay, it remains an abstract concept until we experience it directly [Tuan 171]. He contends that although humans know more about the Earth than before Columbus, that knowledge is indirect and generally inaccessible to the individual—locked in encyclopedias and atlases. “The knowledge we have as individuals remains very limited, selective and biased” [85].

Boorstin traces the problems with relying on past authorities for knowledge in his investigation of the dogmatic adherence to the scientific works of Aristotle and Galen. He cites the motto of Newton’s Royal Society *Nullius in Verba*, “take nobody’s word for it; see for yourself” as the reflection of the importance of a new kind of knowledge based on experience [394]. This rejection of

hearsay in favor of self-made knowledge is embodied in Boorstin's concept of *negative* discovery. He quotes Santayana who observed that "knowledge is recognition of something absent; it is a salutation, not an embrace." In Boorstin's calculation, this awakening to another area or dimension of our ignorance is a "negative discovery." The existence of America is Boorstin's prototypical negative discovery. When Columbus came upon a new "fourth part of the world," it meant that traditional human ideas about the nature of the planet had to be rewritten. This took time. Boorstin points out that European mapmakers had a vested interest in the supposed accuracy of their maps. Even Columbus died unaware of the scope of his negative discovery. Others have followed in his footsteps. Boorstin counts Darwin, Marx and Freud among the giants of negative discovery. Like Columbus in the realm of geography, in the areas of genetics, economics and the subconscious they each revealed new deficiencies in the collective understanding of mankind [90].

Tuan embraces experience, even if "limited, selective, and biased" as the key to understanding. Tuan refers not to experience in the passive sense, but to an "active experience that implies the ability to learn from what we have undergone" [9]. Rather than understand the world, *the given*, which Tuan asserts cannot be known, we construct our own perception of the world through our individual explorations. This view of experience ties directly into the concept of exploration. As Tuan puts it, "to experience in the active sense requires that one venture forth into the unfamiliar and experiment with the elusive and the uncertain. To become an expert one must dare to confront the perils of the new" [5].

How do we reconcile Spinoza's views on experience with those of Boorstin and Tuan? A clue may lie in the writings of DaVinci on the nature of exploration. "Experience does not ever err, it is only your judgement that errs in promising

itself results which are not caused by your experiments” [337]. Experience never errs. Perhaps in embracing the inchoate nature of experience, Tuan actually touches on Spinoza’s fourth type of knowledge, intuition.

“The *feel* of a place takes longer to acquire. It is made up of experiences, mostly fleeting and undramatic, repeated day after day and over the span of years. It is a unique blend of sights, sounds and smells, a unique harmony of natural and artificial rhythms such as times of sunrise and sunset, of work and play. The feel of a place is registered in one’s muscles and bones” [183].

This idea still centers around experience, but a qualitatively different kind of experience. Tuan seems to find value in the tacit nature of experience as an indirect window into a deeper understanding. As he puts it, “much is learned, but not through formal instruction” [199]. This is intuition; the act of knowing without rational processes. Without understanding *how* we know.

Wayfinding in Design

The concept of wayfinding embodies more than the discovery of routes between one location and another. It represents the intersection of the concepts of place, exploration and understanding. Indeed, each component is dependent on the others for its meaning. As we look more critically at place, exploration and understanding, we see that wayfinding, at its heart, is about finding our way in a much deeper sense.

The architect Malcolm McCullough has written about these ideas and their application to Design in the book *Digital Ground*. He writes that “interaction design is part advocacy, part virtuoso authorship, part ethnography, part engineering science, and part architecture to live by” [147]. If we take design to be the intersection between these ideas, then design itself becomes a place. And the exploration of this place creates new understanding. Consider, for example, the increased importance of ethnographic field work in design, a trend that became ubiquitous in the mid-nineties. Ethnographic research embodies each aspect of wayfinding. It is first and foremost exploration. But it is exploration in context, in place. We “go to where the work is to get the best data” [158]. Ultimately, we desire understanding, but a deeper understanding than can be gained from the traditional tools of marketing—an understanding borne of experience. As the

focus of design moves from symbols and objects to actions and thoughts, we focus more on the needs of users, on their goals and values. This is an exploration of place.

This view of “place” may seem overly philosophic, but McCullough points out that increased mobility means that people are tied less and less to a particular location. Place must be seen as more than just some positional coordinates [190]. “More and more, lives themselves are the places people know, and the kaleidoscope of cities and countries around them just keeps turning” [186]. He asserts that “places are defined less by unique locations, landscapes and communities than by the simple focusing of experiences and intention” [182]. “Ultimately, value emerges from these interactions. This value is constantly negotiated. What matters to individuals, societies, and markets never reaches a final equilibrium, but remains constantly in play” [194]. Exploring and understanding these values in such rapidly changing contexts is a key challenge for interaction design [194]. “Almost all design philosophies are based on a belief in an unseen order, learning the ways of which is the main opportunity for human good. An unseen order exhibits a subtle, inexplicit essence that we refer to as its nature” [211]. This reference to the essence of understanding recalls our investigation of Spinoza.

Both Spinoza’s and Tuan’s ideas are given further form by the current design focus on ambient interfaces. Periphery is background that is outside focal attention, but can quickly be given that attention when necessary [49]. Designing for the periphery—a place—resonates with Tuan’s ideas of selective attention, and of indirect experience with our environment.

I believe that wayfinding serves as a natural metaphor for the process of design. It leads to a deeper understanding of what it means to be a designer in the first place. Too often, we view research as more akin to discovery than exploration.

We are stymied by the illusion of understanding and an assumption of place. The best design research is humble and seeks new avenues for negative discovery. “Problem seeking complements problem solving. Because problems are seldom determinate, this seeking tends to involve selective attention to the more telling aspects of a situation. Designs become distinguished by which considerations have been given attention, among an excess of possibilities” [McCullough 167]. This is what it means to find our way in design.

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