



Learning rural perceptions of place : farms and ranches in southwest Montana  
by Maire Eithne O'Neill

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University

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Abstract:

This study sought to define what influenced people's sense of rural places, and how those influences were related. The purpose was to identify how people acquired and interpreted aspects of their experience that contributed to their perceptions about rural places. These perceptions amounted to their cognitive and affective learning — what they thought and felt about the places they inhabited. The influences of environmental, sociocultural, and personal factors in the perception of the rural setting were the focus of the work.

Through a naturalistic, inductive inquiry involving case studies, a combination of site documentation and interviews were used to gather data, followed by content analysis. Additionally the historical geography of the area was investigated for clues to past perceptions of the landscape. Interviews with men and women who lived and worked in agricultural settings were analyzed for perceptual priorities and learning traits.

The farming and ranching families interviewed in this study demonstrated that through the demands of their physical work and a localized folklore they understood the natural and built landscape. Visual perception played mainly a supporting role in perceptions that were based on tactile and kinesthetic knowledge. Understanding of spatial relationships was formulated by the pressing needs of physical labor and movement on the land. Through their constant work on the terrain they were acutely aware of the details of topography and the exact condition of the ground. Stories passed on within the family were highly influential in shaping perceptions of the place. Through their shared narrative, ranchers understood family, community, and place.

The process of learning about rural places revealed in this study modeled adult learning theory. Participants reflected learning that was experientially based, highly relevant to their lives, and was built on an increasing reservoir of experience. Their learning was self-directed, consisting of both formal and informal learning. They acquired knowledge as a means of increasing their competence in their work. Participants' perceptual patterns demonstrated individual differences, especially between women and men in environmental learning style.

LEARNING RURAL PERCEPTIONS OF PLACE:  
FARMS AND RANCHES IN SOUTHWEST MONTANA

by

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## TABLE OF CONTENTS

	Page
<b>1. INTRODUCTION</b>	
Background .....	1
Problem .....	4
Purpose of the Study .....	5
Research Questions .....	6
Scope of Study .....	6
Potential Contribution to Practice & Research .....	8
<b>2. REVIEW OF LITERATURE</b>	
The Concept of Perception .....	10
Introduction .....	10
Information-Seeking Systems .....	11
Haptic Perception .....	12
Effects of Perception on the Formal and Informal Learning Process .....	14
Perception as a Learned Ability .....	14
Selective Attention .....	15
Cognitive Mapping .....	16
Perceptual Ability and Learning Style .....	17
The Role of Perception in the Development of A Sense of Place .....	18
Ethnocentrism .....	18
Topophilia .....	19
Urban Places .....	20
Experience & Memory .....	21
Place as a Unifying Experience .....	22
<b>3. PROCEDURES</b>	
Introduction .....	23
Part 1: Historical Geography of Gallatin Valley Settlement (1864-1918) .....	24
General Design .....	24
Sample Selection .....	24
Data Gathering .....	25
Compilation .....	28
Analysis .....	30
Part 2: Case Studies .....	32
General Design .....	32
Sample Selection .....	32
Data Gathering .....	35
Tape Recorded Interviews For Data Gathering .....	37
Interview Questions .....	38
Site Drawings, Photographs, and Notes .....	39
Compilation .....	39

## TABLE OF CONTENTS -- (continued)

	Page
Data Analysis .....	40
Coding of Transcripts .....	41
Building and Landscape Elements Analysis Matrix .....	43
Conclusion .....	43
<b>4. EVALUATING THE LAND: EVOLVING PERCEPTIONS OF LANDSCAPE IN GALLATIN VALLEY SETTLEMENT</b>	
Introduction .....	46
Earliest Occupants .....	47
Early Euro-American Perceptions .....	49
Overview of Settlement in the Valley .....	50
The Valley as Bread Basket .....	50
Federal Land Disposal .....	52
From 1862 to 1880 .....	52
From 1880 to 1900 .....	54
From 1900 to 1910 .....	56
Analysis of Three Townships .....	56
Willow Creek .....	57
Springhill .....	63
Bridger Creek .....	71
Homestead Site Analysis .....	79
Building Sites .....	84
Dwellings .....	85
Agricultural Buildings .....	86
From the Journal of an Early Settler .....	87
Conclusion .....	91
<b>5. CASE STUDIES</b>	
Introduction .....	93
Case Study: Site #1 .....	95
General Character .....	95
Buildings .....	96
Participants .....	100
Historical Development .....	100
Evolution of the Building Site .....	106
Conclusion .....	111
Case Study: Site #2 .....	112
General Character .....	112
Buildings .....	113
Participants .....	117
Historical Development .....	117
Evolution of the Building Site .....	118
Conclusion .....	118

## TABLE OF CONTENTS -- (continued)

	Page
Case Study: Site #3 .....	118
General Character .....	118
Buildings .....	124
Participants .....	127
Historical Development .....	129
Evolution of the Building Site .....	131
Conclusion .....	132
6. PERCEPTION OF BUILDING & LANDSCAPE ELEMENTS	
Introduction .....	138
Individual Perceptual Preferences: An Analysis .....	139
Site #1 .....	139
Site #2 .....	145
Site #3 .....	150
Conclusion .....	156
7. VISUAL LEARNING OF PLACE	
Introduction .....	159
Like Another Place .....	160
Family Photographs as Record .....	161
Views .....	162
The Looks of Buildings .....	162
Building & Land Relationships .....	164
Edges & Limits .....	165
Wildlife .....	166
Vegetation .....	166
Conclusion .....	167
8. HAPTIC PERCEPTION OF PLACE	
Introduction .....	168
Working Livestock .....	169
Constructing and Maintaining .....	172
Working Fence .....	173
Braving Weather .....	174
Walking the Ground .....	177
Using Water .....	180
Cognitive Mapping .....	183
Conclusion .....	189
9. CULTURAL KNOWLEDGE & MEMORY	
Introduction .....	191
Social & Cultural Influences .....	192
Appreciating Early Siting Decisions .....	192
Water Rights .....	193
Local History .....	194
Accumulated Knowledge .....	197

## TABLE OF CONTENTS -- (continued)

	Page
Railroad .....	198
Changing Technology .....	199
People & Memory .....	201
Family Members .....	201
Family stories .....	203
Memory of Events .....	205
Friends, Neighbors, & Employees .....	206
Working Together .....	211
Conclusion .....	213
<b>10. SELF IDENTITY &amp; PLACE IDENTITY</b>	
Introduction .....	214
Self Efficacy .....	214
Uniqueness .....	217
Attachment to Place .....	219
Sale of Land .....	220
Sense of Permanence .....	223
Values .....	223
Conclusion .....	224
<b>11. SUMMARY &amp; CONCLUSIONS</b> .....	226
Introduction .....	226
Visual Perception .....	227
Haptic Perception .....	228
Social & Cultural Knowledge .....	234
People & Memory .....	235
Self Identity .....	237
Conclusions .....	239
Recommendations .....	241
REFERENCES .....	243
APPENDIX .....	249

## LIST OF TABLES

Table	Page
1. Themes posed by Lyndon and Moore (1994) .....	21
2. List of topics used to code interview transcripts .....	42
3. Sample of building and landscape elements analysis matrix .....	45
4. Site #1. Sequence of construction and demolition of buildings .....	111
5. Site #2. Sequence of construction and demolition of buildings .....	118
6. Site #3. Sequence of construction and demolition of buildings .....	132
7. Site #1 - Interview #1-A, perception of building and landscape elements.....	141
8. Site #1 - Interview #1-B, perception of building and landscape elements.....	142
9. Site #1 - Interview #1-C, perception of building and landscape elements.....	143
10. Site #2 - Interview #2-A, perception of building and landscape elements.....	146
11. Site #2 - Interview #2-B, perception of building and landscape elements.....	147
12. Site #2 - Interview #2-C, perception of building and landscape elements.....	148
13. Site #3 - Interview #3-A, perception of building and landscape elements.....	152
14. Site #3 - Interview #3-B, perception of building and landscape elements.....	153
15. Site #3 - Interview #3-C, perception of building and landscape elements.....	154

## LIST OF FIGURES

Figure	Page
1. Topographical map of the Gallatin Valley .....	48
2. All federal land claims in the Gallatin Valley from 1870 to 1910 .....	53
3. Willow Creek township (T1NR1E). Surveyor's map 1868. ....	58
4. Willow Creek township. Settlement observed by surveyors, 1868. ....	59
5. Willow Creek township. All homestead settlement by 1918. ....	61
6. Willow Creek township. Buildings and roads from 1987 U.S.G.S. maps. ....	62
7. Springhill township (T1NR5E). Surveyor's map, 1868. ....	64
8. Springhill township. Settlement observed by the surveyors in 1868. ....	65
9. Springhill township. All homestead settlement by 1910. ....	67
10. Springhill township. Homestead settlement process in approximately five year intervals from 1868 .....	68
11. Springhill township. Buildings and roads from 1987 U.S.G.S. maps. ....	70
12. Bridger Creek township (T1SR6E). Surveyor's map, 1868-1870. ....	72
13. Bridger Creek township. Progression of all claims on public domain 1868 to 1907.....	73
14. Bridger Creek township. 1902 Surveyor's map. ....	75
15. Bridger Creek township. Surveyors' soils appraisals in 1868, 1888, and 1902. ....	76

## LIST OF FIGURES -- (continued)

Figure	Page
16. Bridger Creek township. Surveyors' appraisals overlaid on topographical maps. ....	77
17. Bridger Creek township. Surveyors' appraisals compared with existing settlement. ....	78
18. Bridger Creek township. Buildings and roads from 1987 U.S.G.S. maps. ....	80
19. Willow Creek township. Homestead sites located on land claims. ....	81
20. Springhill township. Homestead sites located on land claims. ....	82
21. Typical farmstead building site types. ....	93
22. Farmstead site plan types. ....	94
23. Farm building scales. ....	94
24. Site #1 - Topographical site plan illustrating the intermediate platform. ....	97
25. Site #1 - Existing site plan as a tight cluster of buildings of various scales. ....	98
26. Site #1 - Varied character of existing buildings. ....	99
27. Site #1 - Land holdings in 1890. ....	102
28. Site #1 - Land holdings in 1913. ....	103
29. Site #1 - Land holdings in the 1960s. ....	104
30. Site #1 - Land holdings in 1997. ....	105
31. Site #1 - Site plan from 1890 to 1915. ....	107
32. Site #1 - Site plan from 1916 to 1930. ....	108
33. Site #1 - Site plan from 1931 to 1975. ....	109
34. Site #1 - Site plan from 1976 to 1997. ....	110

## LIST OF FIGURES -- (continued)

Figure	Page
35. Site #2 - Topographical site plan illustrating the slightly raised, somewhat isolated platform .....	114
36. Site #2 - Existing site plan as a moderately tight cluster of buildings .....	115
37. Site #2 - Character of existing buildings. ....	116
38. Site #2 - Site plan from 1890 to 1915. ....	119
39. Site #2 - Site plan from 1916 to 1930. ....	120
40. Site #2 - Site plan from 1931 to 1955. ....	121
41. Site #2 - Site plan from 1956 to 1975. ....	122
42. Site #2 - Site plan from 1976 to 1997. ....	123
43. Site #3 - Topographical site plan. ....	125
44. Site #3 - Existing site plan as a relatively loose, linear cluster of buildings. ....	126
45. Site #3 - Varied character of existing buildings. ....	128
46. Site #3 - Land holdings from 1867 to 1977. ....	130
47. Site #3 - Site plan in 1915. ....	133
48. Site #3 - Site plan from 1916 to 1950. ....	134
49. Site #3 - Site plan from 1951 to 1977. ....	135
50. Site #3 - Site plan from 1978 to 1997. ....	136
51. Site #1 - Site plan, 1997. ....	139
52. Site #2 - Site plan, 1997. ....	145
53. Site #3 - Site plan, 1997. ....	151

## ABSTRACT

This study sought to define what influenced people's sense of rural places, and how those influences were related. The purpose was to identify how people acquired and interpreted aspects of their experience that contributed to their perceptions about rural places. These perceptions amounted to their cognitive and affective learning -- what they thought and felt about the places they inhabited. The influences of environmental, socio-cultural, and personal factors in the perception of the rural setting were the focus of the work.

Through a naturalistic, inductive inquiry involving case studies, a combination of site documentation and interviews were used to gather data, followed by content analysis. Additionally the historical geography of the area was investigated for clues to past perceptions of the landscape. Interviews with men and women who lived and worked in agricultural settings were analyzed for perceptual priorities and learning traits.

The farming and ranching families interviewed in this study demonstrated that through the demands of their physical work and a localized folklore they understood the natural and built landscape. Visual perception played mainly a supporting role in perceptions that were based on tactile and kinesthetic knowledge. Understanding of spatial relationships was formulated by the pressing needs of physical labor and movement on the land. Through their constant work on the terrain they were acutely aware of the details of topography and the exact condition of the ground. Stories passed on within the family were highly influential in shaping perceptions of the place. Through their shared narrative, ranchers understood family, community, and place.

The process of learning about rural places revealed in this study modeled adult learning theory. Participants reflected learning that was experientially based, highly relevant to their lives, and was built on an increasing reservoir of experience. Their learning was self-directed, consisting of both formal and informal learning. They acquired knowledge as a means of increasing their competence in their work. Participants' perceptual patterns demonstrated individual differences, especially between women and men in environmental learning style.

## CHAPTER 1

### INTRODUCTION

#### Background

One of the current themes in architectural theory involves an attempt to understand what characteristics contribute to places that are meaningful to people. Modernism genuinely aspired to make places that appealed to people's most fundamental instincts and desires for intelligibly organized three-dimensional space. Architects have begun to feel that the foundations of modernism were faulty. Bloomer and Moore (1977) contend that gestalt psychologists' two-dimensional experiments of visual perception formed the basis for the architectural esthetic of the Twentieth Century. Jonathan Hale (1994) suggests that much of modernist architecture and work that has followed it has no heart, no soul, no magic, and no mystery.

Studies of regionalism and historic building typologies reveal that some older models of constructing the built environment have much apparent connection to regional micro climate, to locally available resources, to natural topography, to regional culture, and to the means by which people travel or make a living. Historic regional architecture and planning, therefore, have promise as models to suit evolving paradigms of design for sustainability.

The focus of concern in regionalism has been on architects', planners', and developers' interpretations or translations of historic regional typology, for better or worse, to re-establish places with strong local identity. One of the assumptions of this movement is that the physical manifestation of historic buildings and sites possess such

an identity. Designers have assumed that the characteristics or elements *they* interpret as creating this sense of identity are the same as those aspects that will inspire the loyalty and identity of the inhabitants of the region. Perhaps in our concerns for regionalism, we need to consult the population of the region.

From the architect's, planner's, or developer's characteristically urban perspective, we have assumed much, and understood very little of what constitutes a rural environment for those who have lived and worked that life. As a result, we are tending to consume farm and ranch land with development that, at best, satisfies the aspirations of the individual buyer who often arrives from outside the region with different values. It was the desire to define what "rural" means that motivated this study of how people go about perceiving rural places.

Especially in rapidly growing regions of the American West, we have a long tradition of aspiring to "the good life in the country," for example, as housing estates, suburbs, and ranchette subdivisions have evolved to accommodate large populations that aspired to uncrowded living (Banham 1971). By contrast to the city, many of these environments are indeed uncrowded, especially at the outset of development. They have also served an important role in attempting to balance the desires of middle class Americans to live in a healthful space of their own, while making a living in urban jobs.

We have overlooked our own conflicted values as a population, however. In the process of continued development, the character of open landscape that people sought has ultimately given way to something they are less happy about. Is there a way to provide an affordable living environment for substantial populations that retains some critical rural qualities in a lasting and sustainable way? If there is an affirmative answer to this question, it almost surely lies in geographic planning models as well as architectural solutions. To approach this question, though, we need to properly understand and define rural place identity.

What are the essential characteristics of rural regions? How can we come to a more genuine understanding of what constitutes a rural place? We need to consult the rural dweller. Farming and ranching communities represent the archetypal rural population. As the conditions of rural life have changed in the course of history -- such as modes of transport, the technology of farm machinery, the size of farms, and the availability of telecommunications -- pragmatic spatial or architectural needs in one generation have become superfluous in another. There are not necessarily obvious models of historic regional typology that make sense for the contemporary conditions of rural life. Perhaps farmers and ranchers are themselves undergoing such an intensive period of technological and economic change that they, too, are uncertain of what constitutes "ruralness" for themselves and for their own generation. It is not clear whether the important qualities of place identity are inherent in the physical artifact of the place, or if physical attributes of a place are critically linked to shared feelings, associations, or activities.

People know about and learn about places in a complex variety of ways. Many of these ways of knowing are through experiential learning. External and internal sources of knowledge color our perception of the local environment. Social expectations and cultural norms influence how people interpret the meaning or value of physical attributes of the historic rural setting. Knowledge of the historic context, and the ways in which a farm or ranch site fits into this larger context may play a part in site knowledge. Family history may also influence the way in which the inhabitant sees or appreciates characteristics of the setting. Family and other cultural influences could lead to willing or unconscious tolerance of physical arrangements on the rural farm site that are less than ideal. Alternatively, expectations from these sources might persuade inhabitants to hold preferences precipitating functionally unnecessary changes to the setting. Social

influences may also guide people's perceptions, leading them to hold values that are time-tested to prove rational and prudent in the setting.

### Problem

The term "sense of place" is widely used in studies of the American West as a powerful descriptor of geographic identity and resident belonging. "Place-identity" is a term less used in the literature, but implied in the context, having to do with the way in which a setting helps to define the character of the person inhabiting it. These are important ideas because a mobile society has contributed to a sense of rootlessness, with a resultant loss of identity, particularly in the West.

*Sense of place:* A clear and vital understanding of a place. A strong sense of association or belonging that a person may have within a definable physical setting.

*Place identity:* The ways in which a particular setting reinforces the individual's sense of who they are (Proshansky, Fabian, and Kaminoff 1983).

Contemporary architecture reflects a widespread interest in reclaiming a sense of belonging in a geographic region. "Sense of place" and "place-identity" are terms that have remained illusive, however, regarding definable qualities of the experience they describe. What gives people a sense of place? How can designers inspire such a response in designing contemporary places?

What influences people's sense of place or place-identity, and how are those influences related? Are there specific building or landscape elements, groups of elements or relationships in rural settings that develop, maintain, or reinforce a sense of place or place-identity? What is the relationship between topological elements of a setting (topographical characteristics of a place in relation to its history) and individuals' experiences and perceptions of the setting? What are the influences of environmental, socio-cultural, and personal factors in the perception of a physical setting?

### Purpose of the Study

The purpose of this study was twofold: to describe the perceptions that farming and ranching families develop of their immediate physical environment, and to determine whether their perception evolved from environmental, socio-cultural, or personal knowledge. It sought to identify specific building or landscape elements, groups of elements, or relationships in regional historic buildings that develop or reinforce a *sense of place* or *place identity* in a living and working environment. As an architect and educator, I was interested in how people acquire and interpret aspects of their experiences in a physical setting that contribute to their perceptions about places. These perceptions amount to their cognitive and affective learning about places -- what they think and feel about the places they inhabit. The effects of environmental, socio-cultural, and personal factors in the perception of a physical setting were the focus of this work.

Through this research, I attempted to compare design attributes with the ways in which they became important to the occupants, if at all. The study sought to determine if these attributes held practical, aesthetic, or symbolic value to the perceiver. Further, it sought to find out what characteristic people-environment interactions led to strong feelings of belonging in a place. It explored whether there were characteristic ways in which people learned about and interpreted the physical environment that helped them evolve strong positive associations in a particular setting.

The methodology for the investigation was through interviews with people who lived and worked on southwest Montana farms and ranches. A historical study of settlement in the valley permitted an interpretation of previous perceptions of the valley, and comparisons of these with contemporary notions. The historic context also served as a reference with which to evaluate contemporary perceptions of the past, and to explore the role that this knowledge played in understanding place.

### Research Questions

Research questions fall under two major areas of inquiry:

1) What are the characteristic ways in which rural residents in southwest Montana perceive (learn about) their immediate physical environment? The following ideas were explored: How do memories of meaningful experiences in a setting contribute to perceiving (learning about) the setting? What is the role of social or cultural knowledge in shaping perceptions of these rural places? How important are the physical attributes of a setting to the occupants' perceptions of it, and in what ways do they become important? Is understanding of the physical setting shaped from visual, pragmatic, historic, or experiential influences? To what extent do physical attributes serve as triggers for other meanings, superseding visual esthetic concerns?

2) Do some typically rural ways of learning help people evolve a "sense of place" in a particular setting? The following directions of inquiry helped to explore this question: How is place identity related to self identity? In what ways does a setting reinforce the occupant's sense of who they are? How does the physical character of the place itself play a role in our experiences of it or our feelings about it? Do the physical attributes of a place hold practical, aesthetic, or symbolic value for the perceiver?

### Scope of Study

By interviewing farmers and ranchers, and analyzing their responses, this study examined the following modes of learning about places: kinesthetic and practical experiences leading to experiential knowledge acquired by physical activity of the perceiver in the setting; visual and experiential knowledge of the perceived design attributes of the setting; collective knowledge of the history of the setting; experiential or

personal knowledge understood by the memory of the perceiver's experiences; personal knowledge in the memory of family history.

The study revealed how people perceive certain aspects of the settings in which they live and work. It explored which physical design characteristics of the setting were relevant to their perceptions and feelings about the place. It explored whether people understood the places they inhabited by predominantly visual esthetic means, or whether they combined those concerns with the practical and fundamental accommodation of people, machinery, and animals. To what extent physical attributes served as triggers for other meanings, superseding visual esthetic concerns, was of particular interest.

For feasibility of documentation this study was limited to definable zones of buildings and land in which people both lived and worked. The family farm or ranch in southwest Montana formed an ideal setting from this standpoint, as well as satisfying the need for a setting in which a family had more than one generation of history. The process involved comparing comments and perceptions of participants with the physical artifact of the setting, and analyzing them for clues to perceptual priorities. Family history in each location was a critical part of the study. Social learning within the context of the family was of potential significance to the knowledge of places.

The analysis process explored the relationship between people's daily activity in a setting, (in particular their work activity), and the associations or meanings they developed about the place as a result. It also examined the kinds of activity people engaged in that contributed to a place acquiring long-term, positive meaning or associations for them. The analysis phase also investigated the influence that mode of transport had on the way in which participants perceived their places.

In the exploration of the notions of "sense of place" and "place-identity," this study explored the relationship of topological elements to individual experiences. There is a historical component to each of the major influences on learning, (environmental,

socio-cultural, and personal). Historic environmental influences may be the in shape or form of buildings, for example, which represent significant phases of regional settlement, causing people to build new barns that reflect a similar typology. Acceptance of the ways in which a farm site has changed and evolved over time to accommodate a changing world may also reflect historical knowledge. Historic social influences may be more symbolic than pragmatic. For example, ranchers in the region do not paint their barns blue. Personal history, such as memories of childhood play in a hay mow, may shape the occupant's preference for a barn with a hay loft, even when it makes more sense to store hay elsewhere. The study examined how history -- or perception of history -- played a part in each of these ways of perceiving, learning about, and understanding the setting.

#### Potential Contribution to Practice & Research

This study was an attempt to better understand what contributes to visual and spatial learning within a context, and the multiple ways in which this learning occurs. The study may help to establish the importance of previous knowledge in the visual learning process. By better understanding the ways in which people as learners acquire knowledge about physical settings, educators can work to improve the ways in which three-dimensional design disciplines (such as sculpture, architecture, urban design, and industrial design) should approach the beginning student. Design educators can better understand and tap into the wealth of perceptual resources and previous experiences that the untrained individual brings into the design studio. Other such studies among culturally varied populations may reveal some critical distinctions between the place learning patterns of diverse cultural groups. Educators may then begin to seek ways to incorporate into their teaching methodology various types of socio-cultural understandings of space and perception of places, and so potentially teach to a culturally wider audience.

These findings may inform us in the design of meaningful places that inspire a sense of connection or identity within a region. Perhaps we can establish what people value in a spatial setting, before we lose those critical qualities of that place. In many instances where there are conflicting *topistic*<sup>1</sup> values within a population, and between populations, this research methodology may help to clarify the critical components. This type of study, repeated in a series of building contexts throughout a region could help lead to a meaningful design guideline for development.

We must recognize regional identity as a social construction. The results of this work are therefore dynamic. The findings may not be the same if done fifty years earlier, and they may not apply to the same area fifty years hence. Any region and its population are prone to change over time. The intent of this type of study is to assist the process of community growth and change in positive ways, by building on past successes, and without losing a sense of place that binds a community together. Planners and architects may employ the methodology for an inquiry in any region. It may help them to translate the most relevant or meaningful qualities of local vernacular architecture and site planning into contemporary design that embodies consistent -- though not necessarily timeless -- place-identity.

---

<sup>1</sup> Eugene Walter describes *topistic* as an adjective associated with *place* as *spatial* is associated with *space*. He defines *topistics* as "the study of placeways" (1988, 21.)

## CHAPTER 2

### REVIEW OF LITERATURE

#### The Concept of Perception

##### Introduction

The concept of perception is multi-faceted, and theories have differed widely. Early perceptual learning theorists linked their work to psychology. As a result, learning theory tends to parallel the development of psychological theory. Early perception theorists proposed that the child was born with innate rational perceptive ability. Theoretical Nativism suggested that the senses were simply a mechanism for passively receiving information (Gibson 1950). Empiricist theorists also believed that the individual was born with an ability of the senses that the mind had not yet learned how to make use of. In this view, the perceiver learns by association and recognition of known elements. They passively acquire stimuli by each of the distinct senses, and record them in the brain for later recall and comparison (Gibson 1950).

Gibson (1966) proposes that the child, rather than a passive receiver lacking experience, has a network of active information-seeking perceptual systems, but an undeveloped attention ability. The child (or adult) develops their perception by progressively developing the ability to discriminate and to attend to detail. The child does not discriminate some details within the field of their perception until they are developmentally ready. He calls this "differentiation theory." Gibson explains that the senses themselves are not subject to learning, but that we evolve our attention to the nuances of information being received through learning.

### Information-Seeking Systems

One of the distinctions of Gibson's (1966) work is the concept of "perceptual systems," in place of the earlier concept of the "senses." He describes five perceptual systems: Orienting (balance), haptic, visual, taste or smell; and auditory. The haptic system is Piaget's significant addition to perceptual theory, and will be explained below. One sense organ dominates each perceptual system or sensory modality, with the exception of the haptic system that makes use of multiple senses for highly integrated information. An important aspect of the idea of the perceptual system is that they are highly active, information-seeking systems.

Gibson proposes that the haptic system actively *seeks information* as opposed to the earlier belief that the senses passively receive "meaningless" stimulus which they pass on to the brain for interpretation or comparison with previous inputs. The process of perceiving is an active process in which interconnected systems operate together. Important in understanding this is the idea of two distinct forms of control of the body: "Motor control" is performatory or executive, and "sensory control" exploratory or investigative. We use both of these forms of control in the process of active perception. We may initiate entirely exploratory moves, and the perceptual system receives information as a result of this movement. The information obtained revises previous knowledge and therefore influences the character or nature of subsequent movement. It is a self-regulating strategy for the acquisition of new knowledge. The important distinction from earlier thought is that perceptual systems are holistic systems designed for active exploring as opposed to passive receiving.

Feedback is a significant component of the perceptual system, because the nature of incoming information determines the character, direction, or extent of the next exploratory (or performatory) movement. Gibson (1966) identifies two major sources of feedback for the perceptual systems: exteroceptive, and proprioceptive. We either obtain

*exteroceptive* feedback, or have it imposed upon us from the external environment (beyond the body). The body itself provides obtained or imposed *proprioceptive* feedback. Gibson and other environmental psychologists assert that both of these sources of feedback are critical to gain an understanding of the physical environment. It is Gibson, however, who is responsible for proposing the significance of proprioceptive feedback in environmental perception. According to Gibson, we more often actively seek both exteroceptive and proprioceptive feedback than have it imposed upon us.

### Haptic Perception

When Piaget (1956) introduced the term, "haptic perception" into the study of environmental perception, he revealed a holistic way of considering our experiences of the physical environment. The term *haptic*, from a Greek term meaning "able to lay hold of" describes the various sensibilities of the body to its position in the physical environment, and to its own condition. This approach to environmental perception goes far beyond visual or spatial perception, and involves the integration of many other senses, such as touch, balance, sound, movement, and the memory of previous experiences. There are multiple sources of sensibility, most of which have no single "sense organ," but are distributed throughout the body: The layer just below the skin, the joints and tendons, the muscles and ligaments, the blood vessels, and the inner ear. These are the sources for the sensibilities of touch, position, movement, exertion, and balance.

According to Gibson (1966), a wide range of the experiences produced from these sources are not "namable sensations," and hence had long been overlooked by researchers. Boring (1963) also recognized the particular sensibility of the body to itself, who termed it "somasthesis" (as distinct from kinesthesia). We learn most of what we know and feel about the physical environment through haptic perception and our basic

orienting system (Bloomer and Moore 1977). Modes of learning that people use to acquire this holistic understanding of their surroundings requires more study.

The concept of haptic and somatic systems are perhaps of the most significance for spatial perception. It has changed the way in which environmental psychologists think about spatial knowledge, which previously placed its primary emphasis on visual perception. Consideration of the haptic and somatic systems has shifted the emphasis of spatial understanding from visual knowledge to a tactile and positional awareness. We gain environmental understanding from physical experience in the setting, not from seeing it. As a further refinement of this idea, Gibson proposes that the angle of joints and 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. At the same time, he states that the sensibility of the muscles and ligaments is *not* critical to this knowledge.

While the muscles and ligaments may not be important for understanding the disposition of the frame, they play other complimentary roles in understanding a physical setting holistically (Piaget 1956, Gibson 1966). They are significant in evolving an experiential perception of distances, for example. Likewise many other parts of the haptic system play crucial roles, constantly supporting and reinforcing each other. The tactile sense of the layer beneath the skin renders, for example, the roughness of a texture, or the coldness of a surface. The vestibular system may lead us to an awareness of a dangerous height or edge. The sensibility of the blood vessels can give us a reading of steepness, as we traverse a hillside. Of course we rarely perceive these things in isolation. The perceptual systems work fluidly together, so that a range of other simultaneous understandings compliment a primary sense, usually (but not always) reinforcing the primary information.

Gibson does not support the idea put forth by Piaget (1956), Glass (1979), and others on the mechanisms of visual perception. They propose that the eye takes in a series

of two-dimensional retinal images from which it constructs a three-dimensional image for retention and recall. In the process of surveying a space, Gibson contends that the visual system goes through a process of "successive sampling and simultaneous grasping" without storing individual images that we must re-connect. He is ambivalent on this point, however, because he later concurs with Stea (1976) that in the process of understanding a large or complex environment, the perceptual system does engage in "cognitive mapping," which involves stored images or schema.

Gibson contends that the perceptual systems are entirely integrated and holistic. He claims that the brain "resonates to information" (Gibson 1966, 268) rather than constructing it. In his view, people are innately curious, and the intuitive exploratory mechanisms of the perceptual systems accommodate the desire to explore and learn about the environment.

### Effects of Perception on the Formal and Informal Learning Process

#### Perception as a Learned Ability

The learning of perception, and in particular environmental perception, is difficult to study because so much of it is intuitive. We rarely address this issue in formal learning situations. It is a learned ability, and a critical factor in all learning. The role of cultural or sub-cultural pre-conceptions or frameworks in our perception and understanding of the physical environment has significant implications for architectural, landscape, and urban design education. Institutions of higher learning in design tend to unconsciously inculcate a "professional culture" that completely subsumes culturally based perceptual characteristics that may have enriched and personalized students' experiences.

Maslow's "hierarchy of learning needs" illustrates how entirely pervasive environmental perception is in the learning pyramid (Maslow 1970). Near the base, just

above biological needs, he places the need for safety, protection, and well-being. For mankind historically, accurate perceptions of the physical environment were critical to survival. So natural selection, in large part, has reinforced the development of this capacity. Maslow defines self-actualization as the ultimate goal in the hierarchy of learning needs. It is characterized in part by accurate perception of reality (Maslow 1970). The development of increasingly refined perceptual systems, then, is a pervasive learning goal.

### Selective Attention

The key role of perception in the process of learning is pointed-out by McKeachie (1988). He explains that the senses first direct the learner's attention, which in turn filters perceptions that are channeled into short term memory, and ultimately they are committed to long term memory or discarded. Perception and its counterpart, attention play central and pivotal roles in this process. Attention is the learned component of perception, and can determine which information we notice in a field of potential stimuli, and which information we overlook. For the adult learner, the individual determines this screening process according to cultural influences, and the physical environment of previous experience.

Learning theorists consider motivation a critical form of channeling attention. Tough (1978) claims that motivation to learn is seventy-five percent dependent on relevance. The pervasiveness and intuition of environmental perception learning are obvious, because the desire and need to understand the settings in which we live and work is highly relevant to our independence and autonomy as adults, and is therefore motivating.

The cultural basis for selective attention is particularly critical in understanding how we perceive the world. It has only received attention in the last twenty years or so

among educators, environmental psychologists, historians, and cultural geographers. Historical geographer, Hyde, refers to this mechanism as a "cultural filter" (Hyde 1993). It determines what we see, what we don't see, and the way in which we see things. Hyde describes an underlying "lens of cultural preparation or expectation" (Hyde 1993, 353) as she examines the texts and drawings of American explorers who reinforced pre-existing myths about the American West. The selection of material phenomena that are significant to people is subject to cultural variability (Rappoport 1976, 223). The process of perceiving is a process of making meaning out of information. Here the distinction between perception and cognition becomes a little blurred. Some theorists have asserted that environmental perception is the same process as environmental cognition (Stea 1976, Gerson and Gerson 1976). They advance this perspective through the idea of "cognitive mapping," which they interpret as an integral part of the fluid process of perceiving, understanding and remembering settings.

### Cognitive Mapping

Cognitive maps are a form of individual schemata in which people organize their spatial knowledge (Rappoport 1976, 220). Stea describes cognitive mapping as a right hemisphere function that requires understanding places in a fundamentally spatial way (Stea 1979, 111). He asserts that this kind of perception is appositional, and is the mode in which children, minorities, and women tend to operate in the physical environment. Men and dominant groups, he contends, perceive the world propositionally. Those who perceive appositionally discern multiple simultaneous sensations and understand them as a whole in the form of a cognitive map. The appositional perceiver apprehends a complex environment by understanding relationships between paths, rather than a series of goal oriented paths (Stea 1979, 112).

### Perceptual Ability and Learning Style

In Keefe's research on learning styles, he brings to the fore the significance of individual preferences that affect the way in which we learn (Keefe 1982). He defines learning styles as "cognitive, affective, and psychological traits that are fairly stable indicators of how a learner perceives and understands the learning environment" (Keefe 1982, 44). Our ability to learn in conventional or formalized settings, then, is dependent upon learned or innate perceptual abilities. Field dependence versus field independence, for example, or sensory modality, or other preferences limit the ways in which our attention filters perceptual information in the learning environment.

Piaget (1956) and Gibson's (1966) theories of perception are highly learner centered, and account for individual differences. The development of attention as a progressive filtering mechanism reinforces the learner centered idea that the learner receives information only when ready, even though the physical ability to receive it is already in place. This is a holistic and highly integrated approach, accounting for many sensibilities and individual differences of the learner. It is based on the preconditions, limits, and opportunities posed by previous experience.

As an intuitive and highly informal adult learning experience, the process of environmental perception fits tightly into Knowles' model of androgogy. The adult operates from an increasing "reservoir of experience," understanding a new environment more readily from previous knowledge of similar environments (Knowles 1980). The adult learner is also highly selective in his or her concerns about a place, depending on their activity. A wealth of previous experience facilitates the filtering of attention. The adult learner needs to recognize the need to immediately apply information, or there is little motivation to learn (Merriam and Caffarella 1991). Relevance of the level of detail required in understanding the environment will determine the aspects and details learned. The adult is best able to learn through active experiences in a setting. Stea reinforces this

idea by contending that movement within a setting is necessary to evolving a clear spatial understanding of it (Stea 1976).

### The Role of Perception in the Development of A Sense of Place

The construction of meaning out of experience transforms space into place. Place is a social construct where people come to understand the identity of a locality gradually. Yi-Fu Tuan (1977) suggests that although topophilia demands total physical engagement with the land, elemental sense of place requires a pause in movement so that human relationships can evolve, and the repeated occurrence of humble events can accumulate a strong sentiment for a place. Historical geographer, Kent Ryden, describes a sense of place as resulting "gradually and unconsciously from inhabiting a landscape over time" (1993, 38). This involves more than individual experiences, but perceptions and stories shared by a community, so that "we get to know a place when we participate in the local imagination" (Walter 1988, 2). The composition of collective memory through generations of experience contributes to a way of knowing about a place.

### Ethnocentrism

Cultural geographer, Yi-Fu Tuan (1977) asserts that our perceptions of the landscapes in which we live and work are highly ethnocentric. He explains that we base our perception of new places on previous experiences of places. Tuan illustrates these influences with the "carpentered" and "non-carpentered" experiences of traditional urban versus rural populations. The biases of the carpentered experience indicate preferences for spaces and form that adhere to a rectilinear and right-angled character. The culturally rural bias tends to prefer non-carpentered forms that may follow more natural contours. These organic forms tend to be expansive or fluid in shape of character, rather than confined. The unconscious impulses of European settlers, coming from a carpentered

experience into the wilderness of the American West was to control and manipulate the spatial forms of their environment. They could not otherwise readily identify with the region.

We should not underestimate the impact that rapid cultural or sub-cultural demographic shifts may have on the way whole populations may perceive a region that is new to them. The corollary to this, of course, is the impact that such a population may have on their new surroundings. Controversy over the appropriateness of subdivision and development of the formerly agricultural expanses of the Gallatin Valley, Montana is an example of this kind of influx and influence. Related to this development is a general shift in the cultural world view by a vocal population of conservationists, who question how we should be using *public lands* -- for grazing, logging, mining, motorized recreation, or wildlife habitat.

### Topophilia

Tuan (1974) defines topophilia as human love of place. His explanation of how we evolve such feelings for a place is entirely consistent with Piaget (1956) and Gibson's (1966) perception theory. Tuan asserts that we base our attachment to places on more than visual or aesthetic appreciation. These feelings, though powerful experiences when they occur, are fleeting, usually not lasting more than a couple of minutes. Topophilia, he proposes, evolves from far more personal and lasting human experiences. It requires extended physical engagement with a setting over time. Entirely positive feelings for and experiences with the place are not a pre-condition, he suggests. The farmer may have mixed emotions about a landscape that has let him down or made life difficult for him. However, because of his physical closeness and intimate knowledge of the place, he feels a genuine love for it.

In discussing the development of a sense of place it is important to distinguish between spatial perception and visual perception. The former involves more integrated knowledge, based on haptic and somatic experience. Development of a sense of place implies a history of primarily haptic and somatic experiences in a defined place that has distinct limits. These experiences, of course, may have greater dimension because of the development of symbolic meanings, associations, and personal history in a place.

Regional, individual, and family history leave markings on the landscape, or transform the meaning of natural landmarks, which become a "record" of the events that have taken place there. This serves to deepen the unconscious ethnocentrism in individual perceptions. Tuan reports that the Australian Aborigine considers the landscape of his predecessors *as his family tree* (Tuan 1977).

### Urban Places

Much of the research on perception in the architectural field has focused on urban settings. Perceptual studies have focused mainly on urban residential neighborhoods such as Cooper's (1975) study of families and "defensible space," which led to design guidelines for family housing developments. The public realm of the urban context offers more built elements from which to draw than rural settings where there is a scarcity of built elements.

In the urban environment, of course, there tend to be multiple simultaneous occupants, with a complexity of overlapping domains, and a wide variety of needs and concerns. This makes it very difficult to define the limits of a study. A clear example of this phenomenon is Hubbard's (1996) investigation of perceptions of urban buildings, which results in limited generalizations about perception of architectural styles. Hubbard's study concludes, however, that "architectural stimuli will evoke a range of images and ideas that are not merely confined to spatial or physical characteristics,"

alluding to the methodological difficulty he encountered because of widely varying perceptions (Hubbard 1996, 85).

### Experience & Memory

After extensive observation of public settings internationally, Lyndon and Moore (1994) propose themes consisting of physical qualities that are characteristic of places that they suggest make certain kinds of memorable experience possible (table 1).

Table 1. Themes posed by Lyndon and Moore (1994)

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Axes that reach / paths that wander
Platforms that separate / slopes that join / stairs that climb and pause
Borders that control / walls that layer / pockets that offer choice and change
Openings that frame / portals that bespeak
Roofs that encompass / canopies that center
Markers that command / allies that inhabit
Light that plays / shadow that haunts / shade that lulls
Rooms that define / space that leaks up into the light
Types that recur / order that comes and goes
Shapes that remind / ornament that transmits, transforms, and encodes
Gardens that civilize
Water that pools and connects
Images that motivate

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These themes suggest many kinds of experience, from auditory to movement or memory recall. The authors pose them poetically, and do not suggest that they should be empirically tested. They are worthy of consideration because they reflect a holistic or haptic perception of place. The authors describe "places" as "spaces that you can remember, that you can care about and make a part of your life." These consist of "namable parts as well as ephemeral sensations" (Lyndon and Moore 1994, xii-xiii). These attributes are not merely visual, but embody aspects of physical movement, touch, sound, discovery, experience, mystery, memory, as well as symbolism.

There has been much experimental study by environmental psychologists and sociologists on how people learn about and perceive the physical and spatial environment. Some of these studies, for example, identify specific "restorative" qualities

-- environmental characteristics that give people a sense of being restored (Korpela and Hartig 1996). While Strumse (1996) deals with perceptions in rural landscapes, he confines his study to visual preferences of informants from urban environments, and does not address perceptions that may have a long-term experiential basis; as someone who lives and works in a rural setting. Environmental psychology researchers, however, have focused little on the dynamic interaction between environmental factors, social and cultural factors, and personal factors that influence the ways in which people perceive and learn about their surroundings, and how they formulate feelings or associations with a place as a result.

#### Place as a Unifying Experience

The illusive qualities of the term, sense of place, epitomize the complexity of issues and influences that determine how people perceive places. Perception is rooted in person, culture, and place. Visual and aesthetic qualities form only a part of people's sense about a place. The many unconscious factors that influence the way in which we understand the places we inhabit make it complex material for study. By examining the modes of learning people unconsciously use to know and think about places, we can try to understand what makes some places meaningful to people. If "a place binds people together by the common emotions it elicits" (Walter 1988), then coherent places have promise for unifying diverse populations.

## CHAPTER 3

### PROCEDURES

#### Introduction

This work involves a two-part, interdisciplinary study. The larger part consists of in-depth case studies in a naturalistic inquiry of three ranching families and their ranches in the Gallatin Valley, Montana. At the outset of documentation of individual sites and interviewing the occupants, it became clear that it would be helpful to establish the historical context of these ranches. The discipline of historical geography makes use of extant site evidence and mapping techniques to determine early patterns of occupation on the landscape, and so a research methodology from that discipline was incorporated into this study as a component part.

Investigation of settlement patterns of early farmsteads throughout the Gallatin Valley established a basis for interpretation of their present conditions. It also provided a larger historical context in which to place family histories and perceptions. The assumption was that early choices people made about siting farmsteads and individual buildings reflected their perceptions to a degree. The study compared speculations on these early perceptions with current perceptions of the landscape. Because the methodology for each part of the study was distinctly different, the following chapter is separated into two distinct parts: Part 1: The Historical Geography of Gallatin Valley Settlement, and Part 2: Case Studies.

Part 1:  
Historical Geography of Gallatin  
Valley Settlement (1864-1918)

General Design

This study investigated how people have viewed the environment and the terrain of the Gallatin Valley through a cross section of time. It was an inductive, historical inquiry, and largely graphic in nature. The settlement period in the valley was explored and analyzed for its impact on the present palimpsest<sup>2</sup> of the landscape. The choices people made about where to farm and where to site their dwellings revealed much about their perceptions and attitudes toward the land. What people thought about the opportunities and risks of the landscape was reflected not only in their journals, but in the physical markings they made in the form of buildings, fences, roads, and irrigation ditches.

Sample Selection

The study makes use of the Gallatin Valley as representative of the earliest agricultural regions in southwest Montana. It is significant as one of the first regions of agricultural production in Montana Territory, and initially developed specifically to supply the 1862 gold rush settlement in nearby Virginia City and Nevada City. Early settlement in the valley was typical of that in agricultural valleys throughout the southwest part of the state. The Gallatin Valley also reflects a settlement history typical in the Northern Rockies and throughout the West, which made the character and pace of its development dependent upon shifting federal land disposal policies, corporate decisions of powerful railroads, investments of distant land companies, and the advertising

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<sup>2</sup> A term borrowed from classics by the discipline of historical geography, which 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." *American Heritage Dictionary*, 1978.

campaigns of railroad town brokers, as well as a few enterprising local individuals. In all these respects, the Gallatin Valley is highly representative of the larger region.

Part of this inquiry involved some detailed mapping of settlement patterns and concurrent surveyor's evaluations. This segment of the work required the selection of sample townships<sup>3</sup>. Several factors influenced the selection of three representative townships. First, additional historic mapping on these specific townships was also available from other sources for triangulation. Second, they each represented a topographical type or orientation: north facing drainage, south facing drainage, and west facing drainage. Third, each township consisted of a range of agriculturally productive lands: some river bottom, some rising bench land, and some dry bench land. Fourth, each township had a railroad line passing through it at some point during the settlement process. Finally, the three townships represented three contrasting relationships with town development: a very early town was settled within one township and has remained a very small settlement; a very early town was settled neighboring a second township, but did not last; a very early town was established neighboring a third township, and became a small city. Similarities and distinctions between the townships afforded the opportunity to compare and contrast settings.

### Data Gathering

The study made use of a variety of sources as ways of evaluating how people have perceived the landscape of the Gallatin Valley over time. These indicators of land appraisal can be variously interpreted. Triangulation of information from different sources, however, provides a more reliable reading of how people actually viewed the landscape in which they chose to settle. A necessary component of this study was an

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<sup>3</sup> A township in this use is a division of land for the purpose of surveying and recording. The pattern used throughout the west was established by the Land Ordinance of 1785. Each township consists of 36 sections of land, six miles square, and is numbered consecutively from a base line and meridian which intersect to form a point of origin within each state.

investigation of basic historical literature on the valley as a part of the larger historic context (Burlingame 1976, Ellsworth 1898, Houston 1933, Malone, Roeder and Lang 1976, McDonald 1984, Smith 1996).

Published journals were an important source for the examination of individual experiences (Randall 1887, Koch n.d., Thwaites 1964, Spray, 1937). They directly reflected individual perception in sometimes rich descriptions. They also illustrated recurring themes or concerns that people in the valley encountered on a daily basis.

Field notes from the original Federal Land Survey for Montana Territory provided general impressions and evaluations of soil quality (Surveyor's Field Notes and maps 1867-1910). Subsequent retracement surveys of twenty or thirty years later provided soils evaluations that reflected changing perceptions. All surveyors' notes, until well into the twentieth century, were hand written in journal form with occasional correspondences between the pages of field notes. They followed a strict format for each survey line struck, and tended to be highly repetitive. Because of the nature of the handwriting and the voluminous nature of the notes, an immediate survey for visible patterns was difficult. Research hours at the archive were limited by the driving distance, so a tape recorder became a critical tool for reading the notes onto tape. Descriptions of section lines were later transcribed as described below (see "Compilation").

Included in the microfiche of Surveyor's Notes were township maps produced at the Surveyor General's Office in Helena, Montana, shortly after the submission of the field survey. These maps contained varying amounts of information, depending on the detail in the surveyor's written notes and the skills of the cartographer. Many of these included partial graphic representations of dwellings, roads, creeks, forested areas, and steep terrain, where these elements intersected the section line being surveyed, and were noted by the surveyor. However, none of the maps noted elevation numerically or in the graphic convention of topographical lines. Print copies of these maps were obtained for

analysis. Some of the retracement surveys toward the end of the nineteenth century included new maps or partial maps, and reflected a higher level of detail and cartographic skill. Prints of these were also obtained.

Land alienation maps of individual townships located homestead and other claims by patent number, and indicated the boundaries of the claim (Land Status and Use Record maps, Township Plats n.d.). In the townships studied, these claims were primarily Homestead Act claims but included Desert Lands Act claims, Agricultural College Scrip, Timber Culture claims, Mining Act claims, Railroad claims, federally withdrawn lands, and others. They illustrated the limits of the land claimed within the numbered section of land in each case.

The dates of the individual patents were retrieved from Control Document Index Cards (C.D.I.), each of which contained a film copy of the final patent document. The cards were retrieved by patent number, and were then individually matched to each claim on the Land Status and Use Record map -- a labor intensive process. The National Archives in Maryland retains the Surveyor's Field Notes, Land Status maps, and original patent documents, but microfiche copies were available at the Bureau of Land Management Archives in Billings, Montana. The microfiche were studied there over a period of weeks, and print copies of the maps were obtained.

A closer look at homestead claims and sites revealed a more detailed order of priorities and perceptions in the settlement process. Karsmizki and Brownell documented sites in detail in an unpublished study of Gallatin Valley homesteads (1983a). For a more general impression of settlement periods, Karsmizki and Brownell's maps of the sequence of individual land claims throughout the valley in ten year intervals provided important perspective. These unpublished maps were retrieved, with permission, from Ken Karsmizki's files at the Museum of the Rockies in Bozeman, where much of the raw data from the Karsmizki and Brownell study is filed.

Finally, recent United States Geological Survey (U.S.G.S.) maps provided a means of comparison of contemporary development patterns with former uses and perceptions (United States Geological Survey Maps 1986). They were also a resource for precise topographical information on the townships studied.

### Compilation

Since there was no hypothesis at the outset, analysis of the material occurred concurrently with the data gathering. This allowed the data itself to reveal patterns for pursuit in subsequent data collection. This was sometimes an awkward process, as the initial data collection was relatively un-filtered information, and compilation was extremely bulky as a result. Additionally, a taxonomy for organization of the material emerged as a result of various attempts at sorting this bulk of data. It was very difficult to organize at the outset. Since the data was collected from multiple sources, organizational problems were compounded by the variety of sources and media. As patterns emerged the information gathering became more selective and efficient.

Recurring themes in personal journals were easy to recognize and record in written notes. Individual quotes which either reinforced those themes, or reflected additional perceptions were also recorded. Significant historical information on the valley, the state, and the West in general was compiled into a historiographic time line.

Tape recordings of the surveyors' field notes were transcribed into a graphic form on a representation of the township grid, following the surveyor's key for the order in which section lines were recorded in the field. A simple graphic code provided a means of representing the often repetitive surveyors' comments. The coded maps were overlaid onto the prints of maps from the survey, at the same scale.

Two tracings were made of each township from composite 1986 U.S.G.S. quadrants using the section lines as a common spatial reference. One copy illustrated the

contour lines and creeks, while the other highlighted contemporary roads and dwellings. These were overlaid and compared to the surveyors' maps.

Land Status and Use Record maps generated a series of tracings that graphically recorded the chronological sequence of cumulative land claims in approximately five year intervals. While the final patent date was an imperfect indicator of actual settlement sequence, it was a more readily available figure than the date of application or the date of initial settlement.<sup>4</sup>

Chronological mapping of individual homestead claims and sites provided material for closer analysis of siting choices. The *Gallatin Valley Homestead Survey* includes locational maps of extant farmstead structures or ruins within the original patent (Karsmizki and Brownell 1983a). The authors mapped these locations on U.S.G.S. quadrants. A fragment of each of these location maps was re-traced, and organized by final patent date, which approximately represented the order of actual settlement.

Bulky quantities of graphic information from various sources required reduction and translation into manageable form. Different types and sources of maps were compiled into similar formats and scales, and treated with consistent graphic techniques that gave them comparability. Unnecessary information in these maps required editing to clarify the material for analysis.

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<sup>4</sup> Initial settlement of a homestead often occurred a period of months or years before the homestead patent was applied for in the General Land Office. This office was, for a period of time during settlement, as far away as Helena -- a difficult and time consuming journey overland. After submission of the application there was a waiting period of 5 years, during which time the applicant had to construct a dwelling, farm a minimum acreage, and otherwise give evidence of conspicuous occupation. After five years the applicant may "prove up" on the claim, and receive the patent which made it legally their own. This required another trip to the General Land Office with witnesses, and legal evidence of citizenship. The *Gallatin Valley Homestead Survey* shows that for many reasons claims were often not patented for seven or more years after they were initially settled, and sometimes the process took eleven years, depending on the hardships encountered (Karsmizki and Brownell 1983). This irregularity makes the use of the final patent date as an ordering device only an approximation of the sequence of settlement.

### Analysis

With the exception of the historiography and themes from journals, the analysis of this body of research was largely visual and graphic in nature. The two distinct media (text and drawings) suggested a phased analysis process. Comparisons were first made within data sources, then between similar data sources, and finally across media types. It was relatively simple to combine and compare the historiography and notes from journals. Where possible, specific periods in the journals were investigated to examine the influence of historically significant events on the perception of individuals living in or traveling through the valley.

Transparencies of the maps, reproduced in similar scales and formats, provided an immediate means of comparison. Twelve to sixteen base maps of each township, generated from various sources, illustrated different phenomena or perceptions at specific intervals historically. The various combinations of maps generated comparisons for analysis. Visual patterns became readily discernible.

Land alienation maps in combination with topographic maps reflected patterns in the sequence of individual land claims. This revealed settlers' perceptions of the more choice claims within the larger landscape. In general the trend was a clustering in the low lands at first, with increasing settlement of higher elevations as time went on.

In the process of transcribing the surveyors' notes into map form, it became clear that there were two kinds of comments written in these notes: Ones that record namable or measurable phenomena (such as known species of trees, creeks, irrigation ditches, or roads and dwellings), and ones that were more evaluative in nature (such as soil quality, or availability of construction timber). This information generated two maps of each township. One map located the measurable phenomena, which in most cases appeared on the surveyors' maps, and illustrated indications of settlement and use that were visible to the surveyors. The other map recorded only a graphic coding of the evaluative comments.



































































































































































































































































































































































































































































