Learning rural perceptions of place : farms and ranches in southwest Montana
by Maire Eithne ONeill

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

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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A thesis submitted in partial fulfillment
of the requirements for the degree

of

Doctor of Education

MONTANA STATE UNIVERSITY-BOZEMAN
Bozeman, Montana

December 1997

APPROVAL

of a thesis submitted by

Máire Eithne O'Neill

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

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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[1] 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.

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[1] 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 kinesthesis). 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)

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

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[2] 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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[2] 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[3]. 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

[3] 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.[4]

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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[4] 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.

The survey notes evaluated soils quality as first, second, third, or fourth rate, but contained no index to explain this evaluation. It was assumed, for the purposes of this research, that this rating was based on a subjective, visual evaluation. This became a useful tool for comparison with settlement patterns. The analysis involved drawing the section lines of the township with various graphic qualities (using combinations of dots and dashes) to key these evaluation types to the map in a visual form. This graphic representation, when overlaid onto a map of settlement generated from the surveyors' notes, made an immediately apparent relationship between existing settlement and soils ratings. These results might be variously interpreted, however (see Chapter 4).

Subsequent surveys, or partial surveys provided later evaluations for mapping. The mapping technique revealed immediately that these evaluations shifted, sometimes dramatically between surveys that were twelve to thirty-four years apart. Transparencies of these representations were overlaid onto the cumulative land alienation maps, again comparing surveyors' perceptions with concurrent homestead settlement.

Mapping of the individual homestead sites generated a sequence of tiny location maps. Again, they only approximated the actual sequence of settlement, because the date of final proof of the patent did not accurately represent the date of settlement. Analysis of these maps suggested patterns of preferred topography and proximities.

The compilation and analysis of maps allowed for the rapid assimilation and comparison of large quantities of disparate information. Although the gathering, sorting, and compilation of this information was very time consuming, the advantage was in its ease of analysis. Many themes and patterns in the data presented themselves through the combination of multiple maps for each township. As potential patterns emerged from the mapping, interpretations were tested against noted historical events. Inversely, historical events suggested themes for the investigation of shifting perceptions about the landscape. The results of this analysis are discussed in Chapter 4.

Part 2:
Case Studies

General Design

The overall design of this study was a naturalistic, inductive inquiry, involving case studies. A combination of site documentation and interviews were used to gather data. The interviews were transcribed, and sites were mapped and drawn, followed by content analysis within data sources and across data sets. A bounded setting was required, in which people both lived and worked, where people had a saturation of experiences contained within the site. The settings needed to incorporate buildings and land, and the interview subjects needed to be engaged in movements between the two, increasing the opportunity for conscious perception of the relationships between natural and built elements. The study focused on family farms and ranches because they met all of the above requirements.

Sample Selection

Purposive sampling determined the Gallatin Valley sites selected for study according to several constraints. Because of the nature of the interview inquiry, they needed to be working ranches, where those who lived on the site were also working the farm or ranch operation. The sites had to have at least one major building, still in use, which was at least eighty years old, and which had not undergone substantial change in its form. This requirement served several purposes: it ensured that the site had a minimum of history within Gallatin Valley agricultural production, the existence of such a building on the site was an important reference for the interview process (which investigated people's awareness of the past), and lastly it served to make the study useful

as a historic building investigation.[5] The participating family had to occupy the site for at least two generations. This ensured that at least one of the interview participants had grown-up on the site, and had childhood experiences and perceptions to reflect upon.

At least two participants were required for interviews at each site, preferably male and female, to gather a range of perceptions and experiences generated from different roles, different kinds of work, or different number of years on the site.

Assistant Dean of Agriculture at Montana State University, Dr. Clayton Marlowe generated an initial list of potential participants. While he was an excellent source of information about individuals, he had little knowledge of the farm sites. Gallatin County Agricultural Extension Agent, Ron Carlstrom, was instrumental in helping to identify viable sites and interview participants from the earlier list. His experience in the field allowed him to make recommendations based on his impressions during field visits to the ranch sites, working with the ranchers, and knowing their family histories to a degree.

During two weeks of correspondence, the list of potential sites and participants evolved considerably, and became highly refined. It included brief descriptions of the ranch operations, and comments on the receptivity of the families to participating in such a study. Ranch site addresses, mailing addresses, and telephone numbers were obtained from the telephone directory, and from Carlstrom. Because of the importance of the building site to the investigation, it was necessary to do a preliminary visual survey to verify the potential of the site, and attempt to determine the age of major structures. This was done with a drive-by screening.

The open-ended quality of the investigation reqired no minimum number of sites. Since compilation and analysis of the interview data were concurrent with subsequent interviews, the number of sites and interviews was dependent on the richness of each

[5] A decision was made not to use Historic Register requirements as a defining limitation for site selection, because as economically viable operations the ranches would necessarily incorporate the addition of new buildings, making the sites ineligible on the basis of contextual inappropriateness.

interview, and the emergence of patterns. Since it was not easy to predict the time it would take to get each interview scheduled and to complete the site documentation, potential participants were contacted one family at a time by mail, and with a follow-up telephone call. This approach also allowed time to begin the time-consuming work of transcribing and analyzing the content, before subsequent interviews. Carlstrom also offered his assistance in formulating an appropriate letter of introduction. (See Appendix).

The advantage of the letter of introduction, rather than a phone call, was that it provided a way of addressing both husband and wife with the proposal to interview. Presumably both potential participants would have the chance to consider the proposal, and discuss their willingness to participate without immediate pressure to make a decision. This was to ensure willing participation of both parties, to be able to schedule both interviews, and to avoid awkward surprises. Due to the business of the ranchers at various seasons, there was often considerable lag time between sending the letter of introduction and getting interview times scheduled with participants.

As the study evolved, three participants were interviewed at each site instead of the anticipated two. Each time the interview process began, another generation of the family emerged, who were either currently or formerly dwelling and working on the site. In all three cases the retired parent of a family member was interviewed. These people were a tremendous and unforeseen resource for the study. They had many more years of perspective on history and change both on the site and in the community. They had time to discuss things at length, and a great willingness to be reflective as the interview required. Future studies would benefit greatly from targeting this group as a primary resource population. The data gathering included a total sample of three sites and nine interviews.

Data Gathering

The study involved the following techniques to collect data: interviews with participants that varied from one to four hours in length (usually tape recorded), a site tour with one of the participants, photographs taken during the site visit, plan sketches of the site with notes and dimensions, and a site inventory. The challenge of this study was to gain the confidence of participants, and to initiate an open-ended interview which would help to highlight the domain of interest, trigger reflection, and reveal some deeper perceptions. The plan for data gathering was for a brief walk-through of the site with a participant, and then hours of site documentation as a means to casually develop a rapport with participants in order to have better interviews. The reality was almost exactly the opposite of this. The site documentation, in all cases, became the last phase of work. It was only after gaining the confidence of residents through the interview conversations, that they felt comfortable in leaving a stranger to wander freely around taking photographs and measuring buildings.

The letter of introduction and later phone call to schedule interviews one family at a time made the overall amount of time spent in data gathering lengthy, especially when the phone call resulted in rejection or considerable postponement. An unexpected advantage of this lag time, though, was that it gave participants a chance to reflect on their experiences, and they tended to begin the interviews with great enthusiasm and much to say before the questions were posed. Two participants spent time gathering family photographs of the ranch site, which became a very useful medium for an open-ended interview. The photographs helped to focus discussion of the ranch setting itself, and served to aid participants' reconstructions of the position and character of former buildings on the site. It was possible to reconstruct former arrangements of the entire building site from family stories related in the interviews.

On the selected sites interviews were conducted individually with the men and women who lived and worked there as ranchers or farmers, to find out their direct perceptions of the place. One adult male and one adult female at each site were desirable for interviews, but not required. Although it was important that each participant had the opportunity to reflect without the influencing presence of another participant, this was difficult to enforce tactfully. It was interesting, though, that the subject matter seemed intriguing to other family members who were not participating, and in five out of nine interviews someone sat nearby to listen. A site tour served as an introduction to each site, and was an effective way of beginning an interview. Unfortunately, it was not always possible to arrange the order of the site tour and interview because of the ranchers' work schedules, the time of day, or the weather.

The number of interview participants per site increased when retired parents were willing to participate. Among the information gathered on each participant was the number of generations that person's family has occupied the farm site, and the approximate number of years they had lived on the site. Participants were assured of anonymity, and were documented by an assigned site number, their gender, and age.

The site tour given by only one participant at each site was also tape recorded. This was an excellent way of having participants introduce and explain the important aspects of the whole setting from their own standpoint. It was also important to match the names used for buildings to the site mapping, as there were not always obvious connections between building and name. In reflection, it may have been a more useful way of interviewing *each* of the participants, because the physical elements of the place served as visual cues for comment and reflection. The interviews that included site tours were by far more successful and fruitful. The physical environment inspired a wide range of topics, and the participant had the opportunity to feel more comfortable, to forget the tape recorder, and to take charge of the direction of conversation. The substance of the

built and natural setting itself became the guiding factor in this part of the interviews. The tour became a documented part of a person's observations, and in most cases it could have effectively substituted for the interview. One site tour lasted about an hour, the others were about two and three hours in length.

Tape Recorded Interviews for Data Gathering. Participants were given the choice of being tape recorded or not. All who were presented with this palm sized tool (a micro cassette recorder with built-in microphone) found it un-intimidating, and consented. On one visit, the recorder was inadvertently left in the vehicle, and the tape recording question was asked without the presence of the machine. This participant expressed a dislike for "those machines," and so the four hour interview was recorded in written notes, losing a good portion of the responses. Three additional interviews took place without the tape recorder, when it was dropped and damaged on the way to the interviews. These were also recorded in written notes. One of these interviews was followed three weeks later with a tape recorded site tour of about three hours length, which almost completely substituted for the interview.

The reactions of participants to the interview recording format seemed to influence the interview in various ways. Participants seemed to take quickly to the sincerity of the researcher when rapid and diligent note taking replaced the tape recorder. Perhaps this effort appealed to the sensibilities of ranchers whose livelihood depended on daily hard work and physical labor, so there was a sense of some common ground between researcher and participant. At times the pauses in conversation while notes were being written were opportunities for the participant to reflect, and sometimes greater insight was developed.

On the other hand, it was impossible to pace a participant's train of thought to the speed of note taking, and many valuable quotes and thoughts were lost in the process of

trying to write down previous ones. The long pauses in conversation that were a necessary part of this process sometimes served to make the interview disjointed, and contributed to a loss of continuity in thought. It seemed, at those moments, to contribute to a lack of the development of ideas, and to keep the interview at a somewhat self-conscious level of answering questions rather than reflecting and conversing freely. The note taking process entirely occupied the focus of the researcher, who could not readily prompt the participant with follow-up questions until the previous comment was noted. This broke up the flow of the interview as a dynamic conversation, reduced the researcher's level of involvement in the content, and seemed, finally, to limit the rapport.

With the tape recorder, all attention was focused on the content of the participants' statements. Participants quickly overcame their initial lack of ease by their involvement in the subject matter. The conversation that typically evolved out of the respondent's comments was more than enough to develop a rapid and comfortable rapport between interviewer and participant. The silent tape recorder seemed quickly forgotten, as evidenced by a participant's visible surprise when the tape was popped out to turn it over. For additional advantages of the tape recording method see "Analysis."

Interview Questions. The prepared interview was a guide for open-ended questions (See Appendix). Often participants had already volunteered the topics of interview questions before they came up, or during the site tour, and so a number of the prepared questions were not asked. Some questions appear a little redundant. It often proved useful to ask a question a couple of different ways to get a participant to reflect adequately. Text in bold highlighted the subject areas for questions, and made it easier to recall the question with a quick glance, which was helpful in maintaining continuity in the conversation. The interviews took from one hour to four hours, depending on the willingness of the participant to be reflective, and their time constraints.

Site Drawings, Photographs, and Notes. The procedure required mapping the existing building site by freehand plan drawings of the site, with horizontal dimensions and estimated point elevations. Black and white photographs of the buildings and written site notes also provided resources for site analysis. A simple descriptive form provided a format for site notes, and was completed by visually surveying the buildings and land (See Appendix). The inventory facilitated the recording of consistent information at each site. Some of statistics or descriptions for the notes were provided by information given in the interviews, but others were sometimes based on rough estimates. The purpose of the site notes was mainly to describe the overall character of each ranch, and to facilitate comparison between sites during analysis. Site documentation drawings were for the purpose of comparing participants' perceptions with the physical reality of the site, and for comparing earlier perceived configurations of the site to later ones. The site documentation did not include judgment about the value of various buildings on the site, and included all buildings. In two cases weather or scheduling demanded a return visit for this documentation. When the interview content areas reached a level of saturation, the data gathering was complete.

Compilation

The bulk of the compilation effort was in the transcription of interviews. The text of each interview was edited before transcription, with the intent that the complete recording should not be transcribed. Effectively, this effort to remove unnecessary information was a first level of analysis. In reviewing the first tapes for edits, it became rapidly clear that there was little information that was tangential to the goals of study. Only relatively small segments of the tapes were not transcribed.

The process of transcription produced surprising information. By listening very slowly, typing every word, and having time to think about the implications of the

narrative, it became clear that a substantial quantity of the content of each interview was unfamiliar information. This realization supports current learning theory, which reports that the listener in a learning situation misses a good proportion of verbally presented material while they are mentally "processing" other parts (Seaman and Fellenz 1989, McKeachie 1994). It also reinforces the argument in favor of using the tape recorder in interview data collection, to be sure the content is a complete, accurate, and an unbiased representation of the participant's statements.

Compilation of the site plan sketches and dimensions consisted of in-scale graphic work, organized and drawn according to architectural site plan conventions. This phase of work included the location and name of buildings, the location of trees, and the location of topographic features such as creeks or hillsides. Site plans of earlier organizations of buildings during specific periods were reconstructed where possible, from the interview information.

Data Analysis

The transcribed interviews were coded according to emergent patterns and categories. Transcription and analysis of the early interviews informed the interviewing and analysis processes. By a process of constant comparison, earlier work suggested unanticipated directions for subsequent data collection and analysis. Patterns observed in the interviews were triangulated by the following means: 1) analysis of other interviews at the same site, 2) analysis of participant's site tour, and 3) comparison with the documented site plans and notes. In the analysis, common patterns *among individuals*, *among sites*, and *across data sources* were investigated. The patterns that emerged from interview data produced material for comparison with the photographs and drawings of the site, and site history. This analysis was then compared and combined with the outcomes of the contextual study in Part 1.

Content analysis began as each interview transcript was completed. Codes were assigned to passages in the text, and a taxonomy gradually developed as the codes were revised and refined. Individual impressions provided a comparison with documentation of the site in photographs, maps, and site plans. The similarities, gaps, or contrasts between individual impressions and the recorded site revealed both conscious and unconscious perceptions about the environment.

Coding of Transcripts. Approximately 75 different codes evolved out of the interview coding process, some of which became sub-categories of others (table 2). When the interview text made reference, often implicitly, to a certain type of knowledge the narrative indicated a particular code. An understanding of the site plan, for example, is implied by mentioning a building in reference to another feature of the site. This analysis relied on many subjective judgments of the researcher. Often a single quote fell into multiple categories, as in the following example:

> The icehouse also stood up there, near the driveway. They used to go to the river to cut ice, and they'd store it in there, with sawdust between the blocks. People would come by there to buy it from them. It was moved down to where J's new shop is, and was used as a workshop. It was made of boards too, not logs.

This simple quote fell into at least ten categories, as follows: *site plan, driveway as reference, proximity of buildings, associate place with family members, moving a building, name of building is function, aware of construction detail, changing function of building, friend neighbor or employee as reference, water source*. Because of this overlap, coding was time consuming, and data multiplied very rapidly at this stage, producing about 300 pages of single spaced text.

The compilation of quotes assigned to each code were then reviewed and analyzed for patterns between individuals or sites. Individual quotes within each code heading fell into one of four categories: Visual Knowledge, Haptic Knowledge, and Social or Cultural Knowledge. The percentage of quotes in each category could then be examined for each

interview under each topic. This examination was on the assumption that individuals may employ different perceptual tendencies in different situations. The results of this examination were compared with the results of the analysis matrix that inventoried the ways in which specific building and landscape elements were perceived throughout each of the interviews.

Table 2. List of topics used to code interview transcripts

- Animal
  - Interaction w animals
- Artifact as ref. to building history*
- Assess looks of building
  - Physical attributes of materials
  - Vertical building height*
  - Name is const. material of bldg.*
- Associate place with family members
  - Senior relative as reference
- Attachment to place
  - Protective of the land
  - Favorite place
- Aware of original motives of settlers
- Because of the way wk is done*
- Building as refuge*
- Building / land relationship
- Cardinal directions*
- Changing function of building*
- Changing technology
- Condition of place - unhappy about
- Construction / structure / maintenance
  - Involved in construction
  - Aware of construction detail
  - Aware of structural soundness
  - Order of construction
  - Maintenance reluctant
  - Maintenance willing
- Detachment from place
- Edges / limits of place
- Exact size
- Family photos as record
- Feels far / not far from town
- Fences
- Floor plan
  - Changes over time
- Friend neighbor or employee as ref.
  - Anger toward neighbors
  - Positive attitude toward neighbors
- Name of building is function
- Ground conditions / soils
  - Quality of soils
- History community history
- Home place as refuge*
- Landmarks*
- Land use
- Like another place
- Markings on landscape*
- Memory of events / stories
  - Family stories
- Mode of travel over land
- Moving a building
- Neighbor building as reference*
- Railroad
- Road as reference
  - Driveway as reference
  - Name of road*
- Sale / purchase of land
- Seasons
- Self efficacy increased / diminished
- Sense of permanence
- Site plan
  - Proximity of buildings
  - Changes over time
- Topography
- Transience of buildings
- Trees
- Uniqueness / unlike another place
- Values
- Vegetation / crops / weeds
  - Quality of pasture
  - Ref. to specific crop
- View
- Water source
- Wildlife
- Working together / alone

* not used as a category for analysis

Building and Landscape Elements Analysis Matrix. This analysis was separate from other coding. A matrix provided a structure to examine the ways in which people perceived and understood building and landscape elements specifically (table 3). A list of building and landscape elements was combined with four categories in which they may be perceived: *visual knowledge*, *haptic / kinesthetic knowledge*, *social / cultural / historical knowledge*, and *family stories / memories*. *Family stories / memory* was a special sub-category of *social / cultural knowledge*, but was separated due to its emergent importance in the data. A mark was added to the matrix for each instance of perception dealing with one of the listed elements. The verbs used were often the key to interpreting the type of perception. A test of reliability of this measure would be to have multiple researchers code the same interviews into the matrix, but this was not done. A glance at the matrix revealed the emphasis of the informant's perceptions regarding specific elements or groups of elements. However, it offered no details of content.

Conclusion

This two part study involved methodologies from two disciplines: historical geography and sociology. The naturalistic inquiry involving in-depth case studies of three ranching families and their ranches in the Gallatin Valley demanded a contextual study investigating settlement patterns of ranches in the valley in general. To determine early patterns of use and perceptions of the landscape, the discipline of historical geography employs extant site evidence and mapping techniques.

Early choices settlers made about siting their farmsteads and buildings reflected their perceptions of the landscape and climate conditions. The study of this larger context of settlement patterns of the early farmsteads in the valley established a basis for interpretation of the interviews with present families. It also provided a larger historical context in which to place family histories and perceptions. By combining the findings of

two analyses, the study compared speculations on settlers' perceptions with current perceptions of the landscape.

The interview text formed the basis for the study of contemporary perceptions. Participants agreed to be involved on condition of anonymity. For this reason the excerpts from the interviews (in Chapter 7 to Chapter 10) are not identified by the individual speaker, or specifically linked to the sites. While a degree of richness is lost without the reader knowing the source of each quote, anonymity was a pre-condition of participation, and those involved were candid in their narrative.

Table 3. Sample of building and landscape elements analysis matrix.

#1 - A (site tour)	**Visual**	**Haptic / Kinesthetic (work)**	**Soc./ Cult./ Hist. knowl.**	**Family stories / Memory**
Perception of design attributes of bldgs / structures:				
Bldg. character	IIII		II	
Bldg. age		I		IIII
Form	II			I
Plan	IIII	IIII		IIII
Surface				
Openings	III			I
Circulation	I			
Structure / constr.	IIIIIIIII	IIIIIIIIIIII	I	IIIIIII
Color	I			
Materials	IIIII		I	I
Scale	I	I		
Function	III	IIIIIIIII		IIIIIIIIIII
Other				I
Percept. of relationships (bldgs/land):				
Proxim. of struct.	I	III		
Site plan org.	IIIIIIIIIII	IIIIII	III	II
Struct. / topog.	II			
Ditches				
Roads / railrd.	IIIIII	IIIIIIIII	III	IIIIII
Views (out/in)	II		I	
Land use	II	IIIIIIIII	IIIII	IIIIII
Boundaries	III	IIIII		
Livestock	II	IIIIIIIIIIIIIIIIIIIIIIII	II	IIIIIIIIIIIIII
Perception of natural elem.:				
Season / weather		IIIIIIIII	III	IIIII
Natural water	IIIII	IIIIII	IIIIIII	II
Lone trees	I	I		
Topography	IIIIIII	IIIIIIIII	I	I
Vegetation	III	I		I
Ground texture		IIIIIIIII		
Wildlife			I	
Size / ownership	I	II	IIIIII	IIIIII
Perception of larger region:				
Neighbor	IIII	II	IIIIII	IIIIIIII
Town	I	II		IIIII
Gallatin Valley			IIII	
S.W. Montana				
Montana	I	I	III	II
Agricult. West	I	II	IIIII	

CHAPTER 4

EVALUATING THE LAND: EVOLVING PERCEPTIONS OF LANDSCAPE IN GALLATIN VALLEY SETTLEMENT

Introduction

The following synopsis of Gallatin Valley settlement history placed the study of contemporary perceptions of rural settings in a meaningful context. Settlement in the valley was fairly typical of the surrounding agricultural region of Southwest Montana. Early choices regarding siting of farms or structures on the landscape, and the elements that influenced those choices were reflected in the patterns investigated here. Newcomers based their initial perceptions on their preconceptions about soil quality, for example, which they brought from elsewhere. As settlement evolved, people seemed to operate on the basis of visual evidence and their own intimate experience with the land and the climate. The introduction of transportation infrastructure, namely the railroad, profoundly influenced evolving attitudes about the open range and private ownership. This context was useful for comparison with contemporary perceptions about what was important in siting new buildings or removing old ones, or other contemporary judgments that dealt with the interface between buildings and land form. This part of the study was also used to evaluate the degree to which ranching families incorporated historical knowledge as a means to understanding their own landscape.

The physical setting of the Gallatin Valley is typical of southwest Montana. It is a broad valley framed by mountain ranges on the east side of the continental divide. The topography varies from river bottom lands with occasional bluffs, and broad, gently

rising expanses, to drier bench lands and foothills (figure 1). Annual precipitation measures about 12 inches in Three Forks area, and about 18 inches in the Bozeman area. Gradual river drainages are fairly evenly distributed through the valley, flowing north and west primarily from mountain ranges which rim the south and east sides of the valley, the major drainages being the East and West Gallatin Rivers and the Madison River. The Jefferson, Madison and Gallatin Rivers converge in the Three Forks area to form the north-flowing Missouri. The elevation varies from 4,000 to 5,000 feet, and rises steeply in the foothills to peaks of over 9,000 feet.

Earliest Occupants

The Gallatin Valley was an important source of game to groups of indigenous people at least 4,000 years ago (Smith 1996). Stone remnants of their villages were recorded in the 1950s on the banks of the Madison River, where artifacts of their hunting and trading were also found. A rare effigy in stones on a nearby hillside marks the religious significance of the area to a later group, although its date has not been determined. The Buffalo Jump near Logan was a seasonal site for the harvest of bison for possibly 4,000 years before the indigenous population had acquired horses for mounted hunting (Smith 1996). Many different Indian groups, pressured from all directions during western settlement, traveled through the valley, or tried to make it their home for a period of time. This led at times to considerable competition and hostility between groups. For most northern plains people, buffalo provided not only their needs for food, but also for shelter, clothing, tools, and medicine (West 1995). These populations probably perceived the valley not in simple terms as a place for hunting, but as a plentiful resource for many of the provisions that sustained them.

In 1806 William Clark noted well-traveled paths as he was guided through the valley by Sacajaweah, who was familiar with these routes:

Figure 1. Topographical map of the Gallatin Valley, including major tributaries of the Madison, Gallatin, and East Gallatin Rivers. Contour lines every 1,000 feet elevation.

> I observe several leading roads which appear to pass to a gap of the mountains...The indian woman who has been of great service to me as a pilot through this country recommends a gap in the mountains more south which I shall cross. (Thwaites 1964, 11).

Clark referred to a number of these as "old buffalow roads," indicating that the predominant signs were of migratory game rather than hunting parties. This perception was reinforced by Peter Koch, an early Bozeman settler more than sixty years later, who still used the same term for the trail that Clark had followed:

> When I first came to Bozeman in 1870, the main 'buffalo road' crossed Sour Dough creek about half a mile above the cemetery and entered the foothills...It was very plain and deeply worn (Koch n.d.).

During the passage of William Clark's party through the Gallatin Valley, Sacajaweah's perception was of a very changed environment, she saw a valley recently stripped of its plentiful game:

> The Indian woman informs me that a fiew years ago Buffalow was very plenty in those plains and Vallies quite as high as the head of the Jeffersons river, but few of them ever come into those vallys of late years owing to the Shoshones... (Thwaites 1964, 12).

Early Euro-American Perceptions

Lewis and Clark's journals provide some of the earliest written perceptions of the valley including the Three Forks area, where they camped in 1805. Their passage is particularly significant because the region was mapped for the first time within the larger context of the Missouri River drainage, and because of the Euro-American names they gave to the rivers and valley. One of the primary concerns of this exploration party was the navigability of rivers, in the search for a Northwest Passage. As a result, the record of their experiences in the valley dealt largely with navigability of the three rivers (Thwaites, 1964). That they immediately named the rivers after those whom they perceived as the most prominent statesmen of their time -- Jefferson, Madison, and Gallatin -- indicates their sense of domain over the landscape ahead of them. They

perceived the land not only as a federal possession, but as a future settlement serving the inalienable right of manifest destiny. Lewis remarked on his perception of fertile soils at the river bottom lands:

> Mountains again recede from the river and the valley again widens to the extent of several miles with wide and fertile bottom lands covered with grass and in many places a fine terf of greenswoard. (Thwaites, 1964, p. 2).

He also evaluated the Three Forks area with a view to establishing settlement, and was concerned with the quality of resources and their potential for building and agriculture:

> These streams...their waters perfectly transparent. There is timber enough here to support an establishment, provided it be erected with brick or stone either of which would be much cheaper than wood as all the materials for such a work are immediately at the spot. I observe large quantities of the sand rush in these bottoms which grow in many places as high as a man's breast and stand as thick as stalks of wheat usually do. this affords one of the best winter pastures on earth for horses or cows, and of course will be much in favor of an establishment...the grass is also luxouriant and would afford a fine swath of hay at this time in parsels of many acres together. (Thwaites, 1964, p. 6, 7).

Overview of Settlement in the Valley

The Valley as Bread Basket

Although fur trappers had known the region long before, the first significant Euro-American settlement of the Gallatin Valley was prompted by the 1862 gold rush in the region, and the sudden demand this created for agricultural produce. Some of those who determined to settle in the valley had tried and failed to succeed in mining near Virginia City. It is possible that they considered providing for the growing mining community might prove more profitable, and provide a safer way of life for a family than living in a mining camp. The valley must have appeared to settlers to be well suited for the development of farming and stock raising. The western end in particular -- the Willow Creek and Gallatin City areas -- had the advantage of proximity to the earliest and easiest transportation routes from the mines. This area was only about sixty miles from the mining region of Virginia City, and was connected by a wagon road that ran between

Helena to the North, and Sterling to the Southwest, facilitating delivery of hay and other products to the mining regions (Karsmizki & Brownell, 1983a).

The Missouri headwaters area may have attracted settlement because rivers were still considered the primary transportation routes, just as Lewis and Clark had seen them almost 60 years earlier. People perceived the rivers in terms of their navigability for freight, connecting the future produce of the valley with markets in St. Louis and the East. In 1862 the most widely used route into the Gallatin Valley from the East was by the Missouri River to Fort Benton, and then overland more than 200 miles (Karsmizki and Brownell 1983a). This aspect of accessibility for freighted goods made the northwestern end of the valley at first a more attractive potential for farming than the eastern reaches.

Development of the eastern end of the valley was spurred very soon afterward in 1864, with the establishment of the Bozeman Trail through the Bridger Range, which provided a far more direct, though treacherous overland connection from the Oregon Trail. Settlement was bolstered by the early presence of Fort Ellis (established in 1867) in the Bozeman area. Early accounts of ranchers in the valley indicate a peaceful and tolerant relationship between white and Indian populations (Spray, 1937). The actuality of peacefulness probably did little to change settlers' preconceptions and fears of threat. Military presence, however, seemed to increase the perceived viability of the Bozeman Trail itself, as it was considered subject to frequent attack.

These overall patterns suggest that early settlement was guided by the desire to raise agricultural produce profitably. Settlers sought access and proximity to established transportation routes for their freight, and they sought some sense of community or protection from perceived threats in a setting that seemed isolated to them.

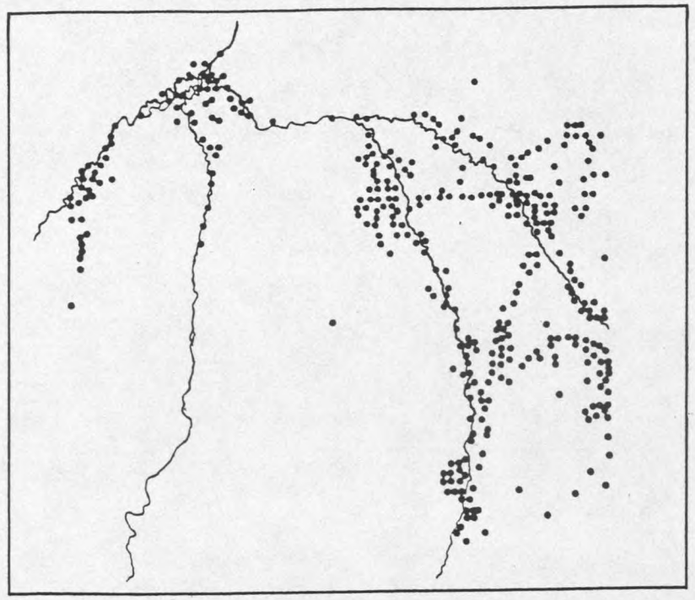
Federal Land Disposal

From the time of the first known non-Native American settlement of the valley in 1862, the growth of community was gradual, but there were some observable patterns. By looking at Land Status and Use Record maps and Control Document Indexes (C.D.I.) it was possible to reconstruct the order in which federal land was claimed and settled. A sampling of only the successfully completed land patents, however, presented an incomplete view of the settlement community. As a result, this examination did not reveal the population of those who applied for patents, occupied and farmed the land, but were unable for one reason or another to prove up their claims within the designated period. Some other critical patterns -- like subdivision of private land, infill settlement of railroad lands, and settlement flurries sparked by railroad promotion and land sales -- were also not highlighted. Some sources estimate that the proportion of successful to unsuccessful claims may have been as high as one to one (Karsmizki and Brownell 1983a).

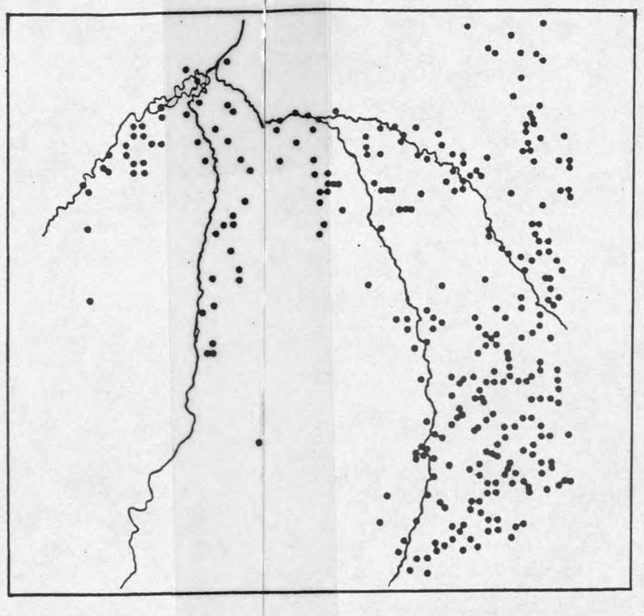
From 1862 to 1880

From Land Status and Use Record maps, Karsmizki and Brownell (1983b) reconstructed the entire valley settlement process in ten year intervals, from 1870 to 1910 (figure 2). This illustration reveals an initial tendency to cluster settlement fairly closely together in the bottom lands of rivers and secondary streams. While it is most likely that farmstead location was based in large part on the availability of running water, there may have been other reasons that reinforced a desire to settle at the major river bottoms. Availability of timber -- at least for fuel if not for shelter -- was a great advantage of this location, but a sense of comfort and familiarity with the riverine environment may have been a perception imported from further east.

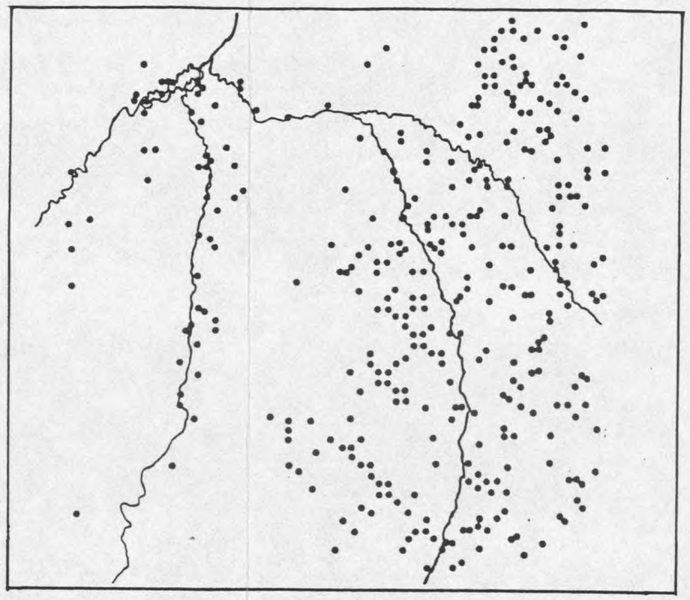
The configuration of these early lowland claims tended to be uneven in shape, rather than the later claims which were clear quarter sections. This reflected the tendency



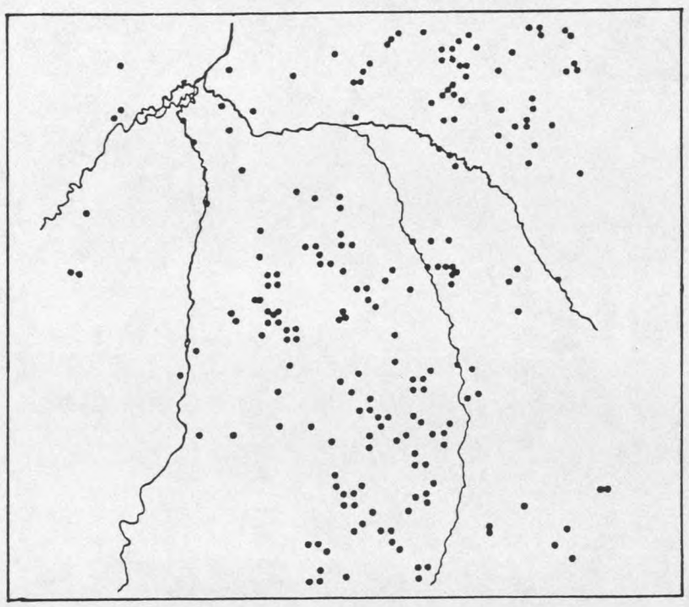
1870



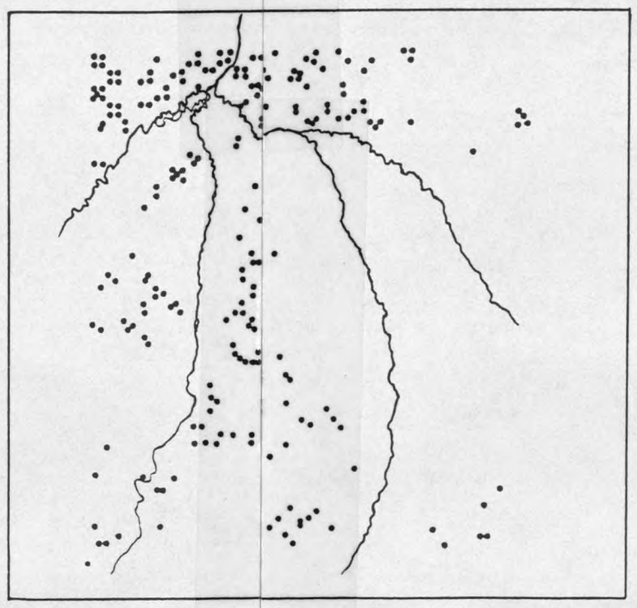
1880



1890



1900



1910

Figure 2. All federal land claims in the Gallatin Valley from 1870 to 1910 in ten year intervaReproduced by permission: © Karsmizki and Brownell 1983b).

of settlers to respond to the character of the topographic, geographic, and vegetative characteristics of their surroundings. The earliest claims were made by preemption, and were settled long before the survey imposed its rigid, abstract geometry on the territory. As preemption claims were made final after the completion of the survey, an irregularly shaped land claim had to be approximated into a legal boundary that adhered to the section lines of the survey, or regular subdivisions of them. The resulting claim was a quarter section composed of a conglomeration of sixteenths.

The earliest phases of settlement, from 1864 to 1880 (figure 2), reflected a high concentration of claims at the headwaters of the Missouri River, along the East and West forks of the Gallatin River, along multiple drainages between the East and West Gallatin, south of the head of the East Gallatin in the Bozeman area, and east of the East Gallatin in the Springhill area.

Following the chronological settlement patterns, settlers began to claim slightly higher land as the river edges were taken-up, or perhaps in places where experience revealed the flood plains. Claims continued to follow drainages, but they backed-off from the bottom lands. The development of irrigation ditches to carry water to dryer farmland was essential to the agricultural use of the higher ground. The earliest surveyors' maps indicate that in many areas around the valley construction of ditches was begun very early. The even slope of the bench land (such as in the Springhill area) and the many creek drainages flowing through it made it ideal for the excavation of simple ditches with a minimum of labor. As a result, early settlers developed this low-lying bench land for irrigated farming.

From 1880 to 1900

As the Northern Pacific Railroad reached completion through the valley in 1883, the entire east side of the valley began to be settled. With the means for freighting goods,

and the growth of the town of Bozeman, the fertile east side of the valley became highly desirable for farming. Cultivation of the drier, more remote bench lands became increasingly possible and profitable as the simple, early ditches were widened and extended, or as irrigation systems began to penetrate the more elevated regions. Evidence of the productivity of the drier grassland may have contributed to a perception among prospective settlers that it was worth the investment of labor involved in establishing or improving ditches. The presence of the railroad, of course, guaranteed a market for grain, making the enterprise more profitable.

In the decade 1890-1900 settlement and farming spread increasingly onto the higher benches (figure 2). As dry land farming technology became widely promoted and recognized, widespread settlement of high bench land became possible. During the twenty years from 1880 to 1900, new claims closely followed extensive irrigation ditches. The introduction of capital investment by the West Gallatin Irrigation Company, planning and preparing ditches and canals, sparked the settlement of land between Anceny and Churchill (Churchill-Amsterdam Historical Society n.d.). By pairing data from Land Status maps and topographic maps, clearly subsequent settlement there followed the direction of an elaborately engineered water supply. Claims during this period and later fell visibly into a pattern of tidy quarter sections. This reflected not only the tendency of homesteaders to claim the full 160 acres allowed, but their adherence to the map rather than the landscape. There appeared to have been more of an interest in the *business* of claiming land than there was in the land itself.

Federally granted Northern Pacific Railroad land holdings represented all odd numbered sections. They were withdrawn from settlement in 1873, under corporate pressure, and left unsettled until the railroad later promoted and sold land for profit. Since these lands were granted in a checkerboard of odd numbered sections, they accounted for half of the land throughout the valley at the time of initial settlement. The earliest settlers

claimed some railroad lands on odd numbered sections through various acquisition processes, but the withdrawal of these substantial tracts of land forced settlement around the railroad sections, and served to delay settlement in roughly half the valley. This checkerboard of settlement was also evident in the maps (figure 2).

From 1900 to 1910

The path of the Northern Pacific Railroad (completed in 1883), and the Milwaukee line (completed in 1909) were strong influences in the even spread of settlement along the northern edge of the valley between 1900 and 1910. The arrival of competitive rail spur lines, combined with dry land farming techniques made other high bench land in this area viable agricultural ground. By 1910 federal lands in the valley were largely claimed and were transferred into private hands. The Enlarged Homestead Act, passed in 1909 to promote settlement in arid regions of the West, had no visible impact on settlement of the Gallatin Valley[6]. That agricultural settlement in the Gallatin was successful without enlarged claims, however, is evidence of the appropriateness of choices made by early farmers. In spite of low rainfall, farming was successful where either sub-irrigation or water rights were available, and successful claims were those which made good use of these resources.

Analysis of Three Townships

Three townships (of 36 sections each) throughout the Gallatin Valley were selected for closer analysis of the character and sequence of settlement: Springhill (T1NR5E -- the agricultural region west of the community of Springhill) consisting of a very gradual bench land nestled at the foot of the Bridger Range with many creeks,

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[6] The Enlarged Homestead Act was enacted in response to appeals from throughout the west that 160 acres, which provided an adequate farming acreage in more moist regions of the country, was inadequate to support a viable farm in vast regions of the arid west. The act enlarged the allowed acreage to 320 acres per claim, and is reflected in land claims in eastern and central Montana.

Willow Creek (T1NR1E[7] -- near Three Forks on the Jefferson River) consisting of river bottom land and dry bench land in an open expanse of the valley, and Bridger Creek (T1SR6E -- immediately north of Bozeman at the head of the East Gallatin River) consisting of some river bottom land, some dry rolling bench land, and a large quantity of steep, mountainous terrain. These townships were selected based on their significance during different phases of settlement, on the range of terrain characteristics they represent, and on the availability of data.

Willow Creek

The Willow Creek township (T1NR1E) marks the point of origin for the 1868 General Land Survey in Montana. It was not only a geographically advantageous starting point, but as mentioned above, agricultural settlement had already begun there, and the federal government wanted the survey to precede settlement whenever possible.

The surveyor's map of 1868 (figure 3) reveals the established Helena-Sterling road, and a number of houses and fences, some of which may have been in place since 1864. This record of early settlement overlaid on a topographical rendering of the township (figure 4), revealed that settlement and fence lines were located in the river bottoms generally, and in some major creek drainages. These early established claims fell into a pattern in keeping with Lewis and Clark's perceptions of the same region. The bottom land seems to have indicated to them greater fertility of soils, and therefore greater potential productivity. This was a perception possibly imported with settlers from very different landscapes in the east and midwest.

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[7] Township and range notation is a shorthand derived from the surveying system of the Land Ordinance of 1785. The full identification of the township noted here is Township 1 North, Range 1 East. The first number identifies the number of townships distant north or south from a Base Line through the state, the second number indicates the number of townships distant east or west of the Meridian Line through the state. The number T1NR1E is the only name by which this section is identified in archives, and makes it possible to easily identify and locate any township within the state. The names -- Willow Creek, Springhill, and Bridger Creek -- are used here for convenience only, and indicate proximities to currently known locations in the valley, but they are not identified as such on legal documents or maps.

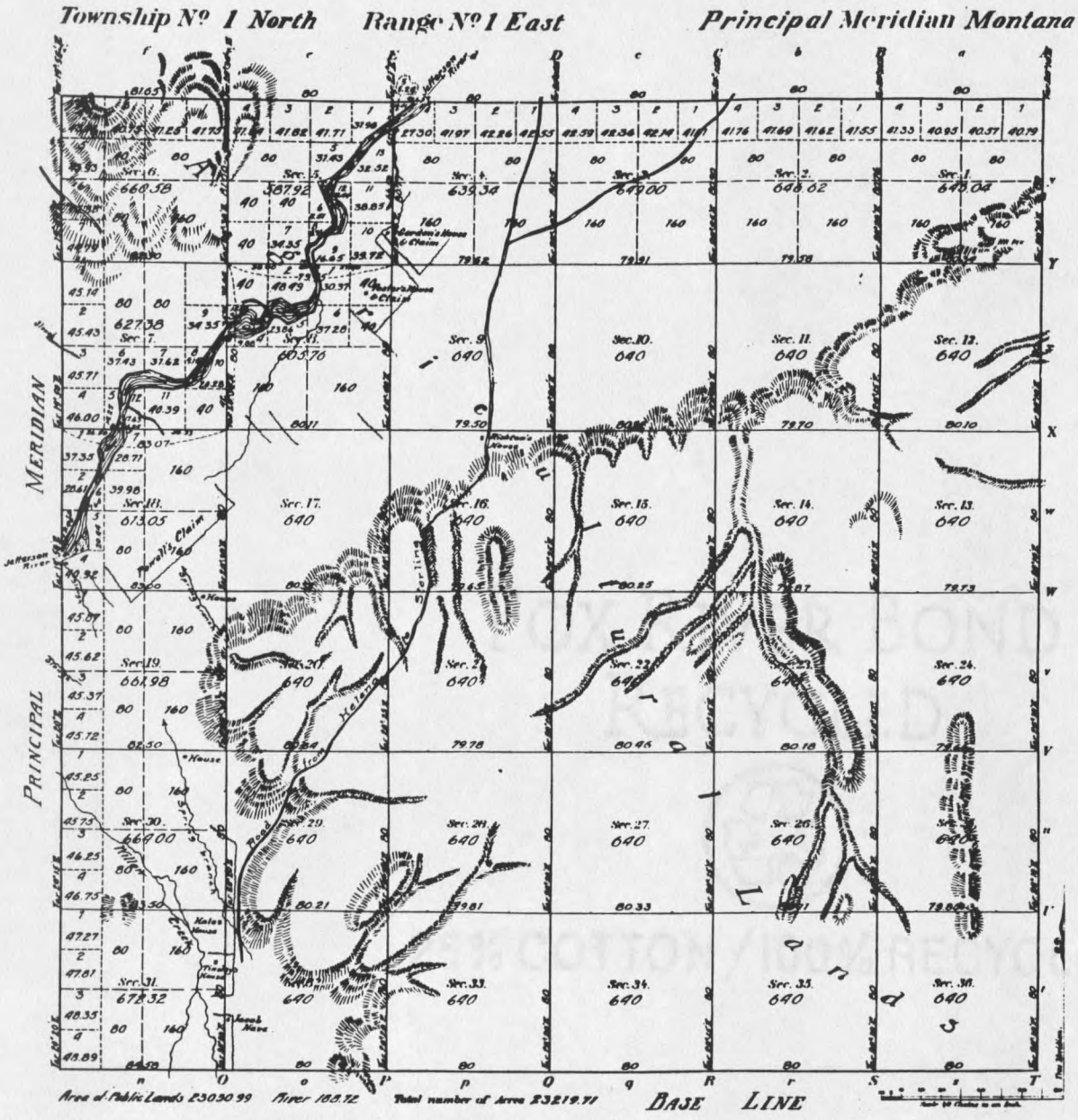


Figure 3. Willow Creek township (T1NR1E). Surveyor's map 1868.

Figure 4. Willow Creek township. Settlement observed by surveyors, 1868.

Settlers were also interested in proximity to major fresh running water sources, and to the road or the river as transportation routes for freight. Although no documentation of the Gallatin Valley rivers being used for transport of goods was revealed in this study, early settlers may nevertheless have held a perception that such an infrastructure would develop in the area.

By 1918 the last homestead patent in the Willow Creek township was proved-up. The patterns of all homestead settlement in the township over a span of fifty years (figure 5) followed somewhat with the typology established by 1868 in the first four years of settlement. The major difference was the lack of development along the original Helena-Sterling road. A recent map of settlement marking individual buildings or groups, rather than land claims, revealed an important spatial shift in the location of buildings and roads (figure 6). The Northern Pacific Railroad, established in 1883, (and in 1909 the Milwaukee line) passed directly through the township, following the even ground parallel with the river. The introduction of the railroad almost certainly caused a shift in wagon roads that connected people to the Willow Creek town site, Three Forks, and Gallatin City. The major road through the area in 1987 ran along side the rail line (U.S.G.S. 1987), and this may have happened at the time of the rail construction over 100 years earlier. Other roads in the township had shifted in the contemporary map to a pattern that almost entirely disregarded the topography, and followed the orthogonal grid of section lines and the resulting parallel and perpendicular property lines. The construction of fences on the open range by the 1890s undoubtedly played a dominant role in cementing the position of roads along these orthogonal property lines.

The new configuration of roads also influenced the placement of later buildings, which began to shift away from the river itself, and began to be organized linearly along major roads, and around the town site. A general shift away from the river may also have been prompted by the occurrence of fifty or hundred year floods. Lewis and Clark noted

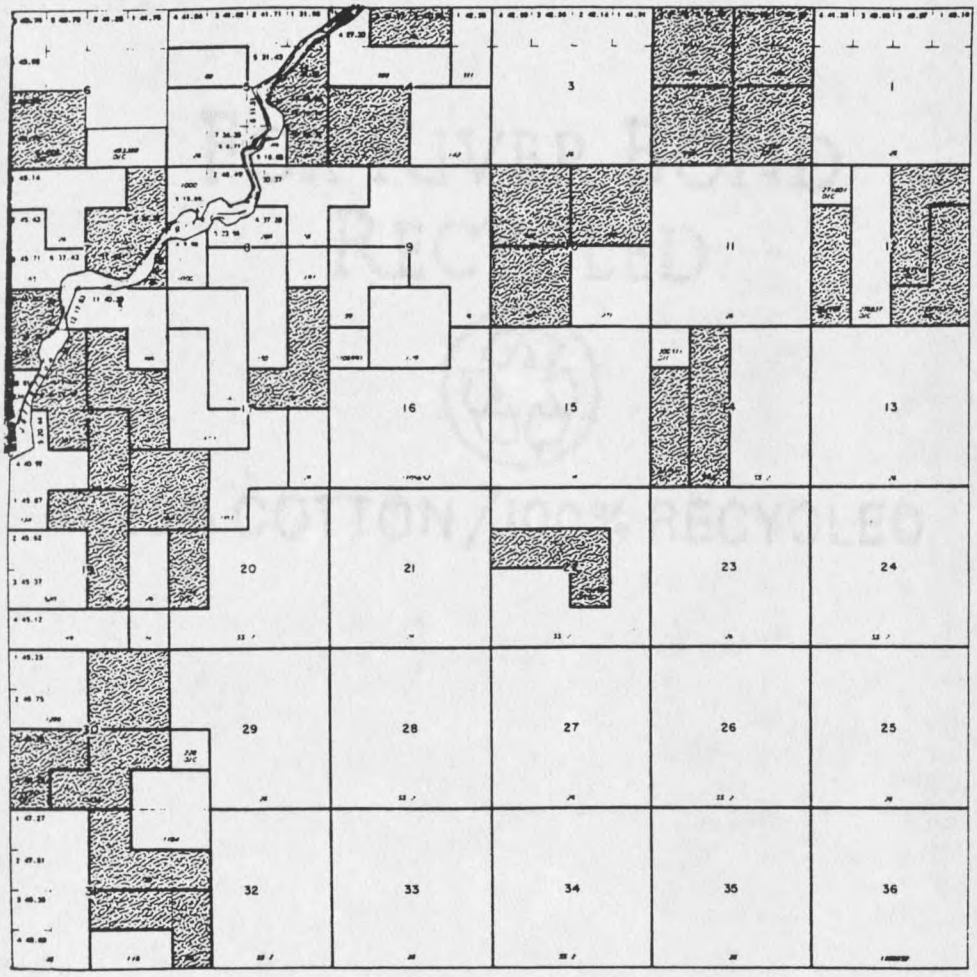


Figure 5. Willow Creek township. All homestead settlement by 1918. (© Karsmizki and Brownell 1983a, adapted from Land Status and Use Record Map n.d.)

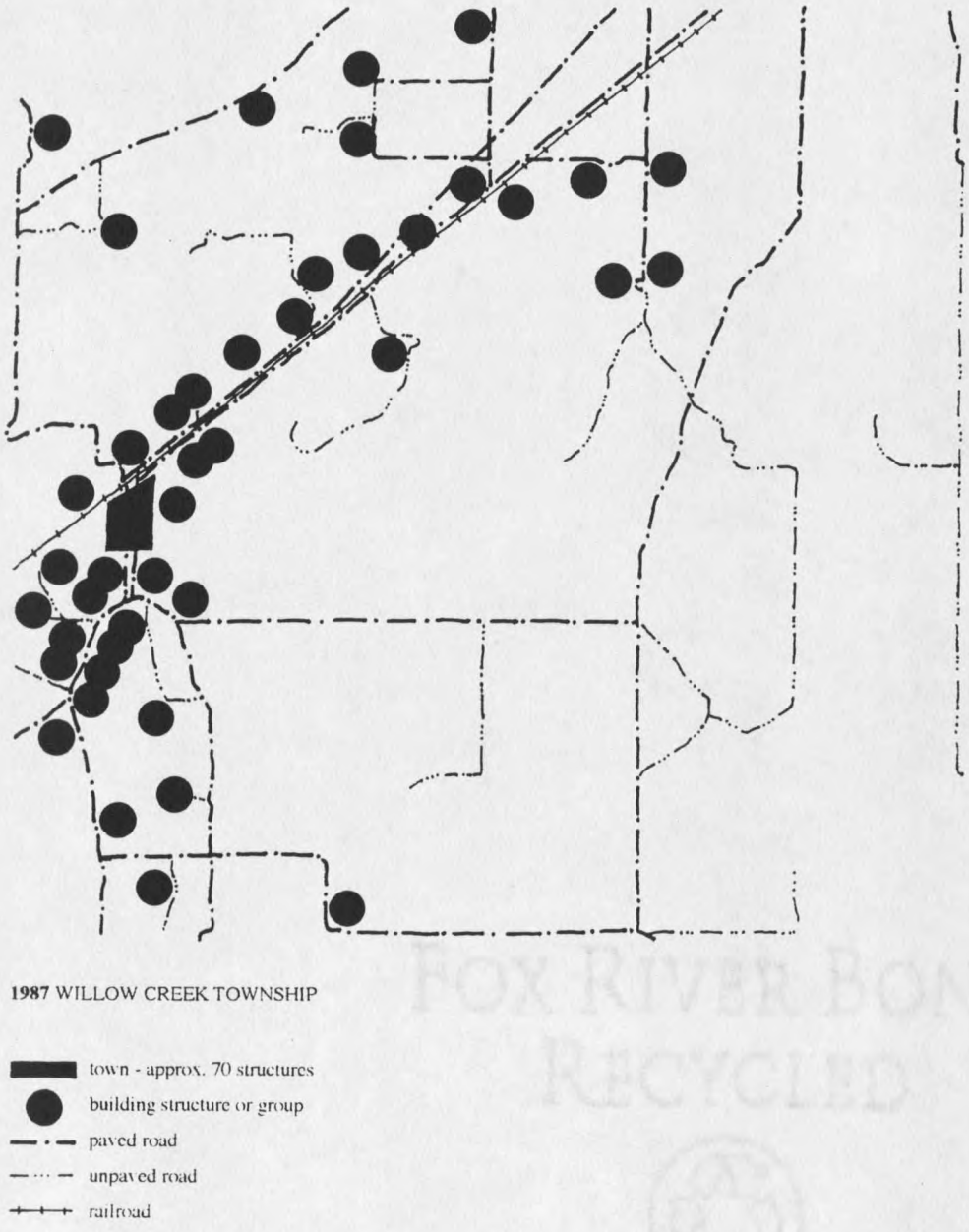


Figure 6. Willow Creek township. Buildings and roads from 1987 U.S.G.S. maps.

repeatedly that they saw no evidence of inundation (Thwaites, 1964), and this may have been true for the period preceding their exploration, and before the arrival of settlers sixty years later. More recent consolidation of 160 acre claims into larger land holdings may have expedited the process of shifting settlement.

Springhill

The 1868 surveyor's map of the Springhill township (T1NR5E -- figure 7) illustrates the rapidity with which the eastern end of the valley developed once Fort Ellis was established in 1867 to protect the Bozeman Trail. Agricultural settlement may have also developed to supply the market demands of the fort itself, even while it was in construction. The earliest sites were first settled, however, in 1864 -- the same year as in Willow Creek. A map of houses and roads that the surveyor saw in 1868 was overlaid onto a simplified contour drawing (figure 8). The pattern was remarkably similar to that in Willow Creek. People chose to concentrate in the low-lying areas first, near the East Gallatin River, and to settle in the major creek drainages of Reese Creek and the South Fork of Ross Creek. In these areas water was readily available for household and stock use, and it was easy to channel for irrigating crops. Two extensive irrigation ditches were already developed by 1868. While it is possible that individuals with considerable capital executed this work, it is more likely that the agricultural community pooled their efforts for common benefit. In either case the presence of ditches clearly indicates that the value of the drier slopes between the creeks had already been recognized by settlers for their richness of soils and potential productivity as crop land.

A notable characteristic of the landscape of 1868 is the proliferation of "roads" leading toward the community of Springhill to the east. These roads -- probably no more than wagon tracks -- seem more than a simple choice of routes from farm sites to the upland community. They suggest a more intensive use of the unsettled lands that may

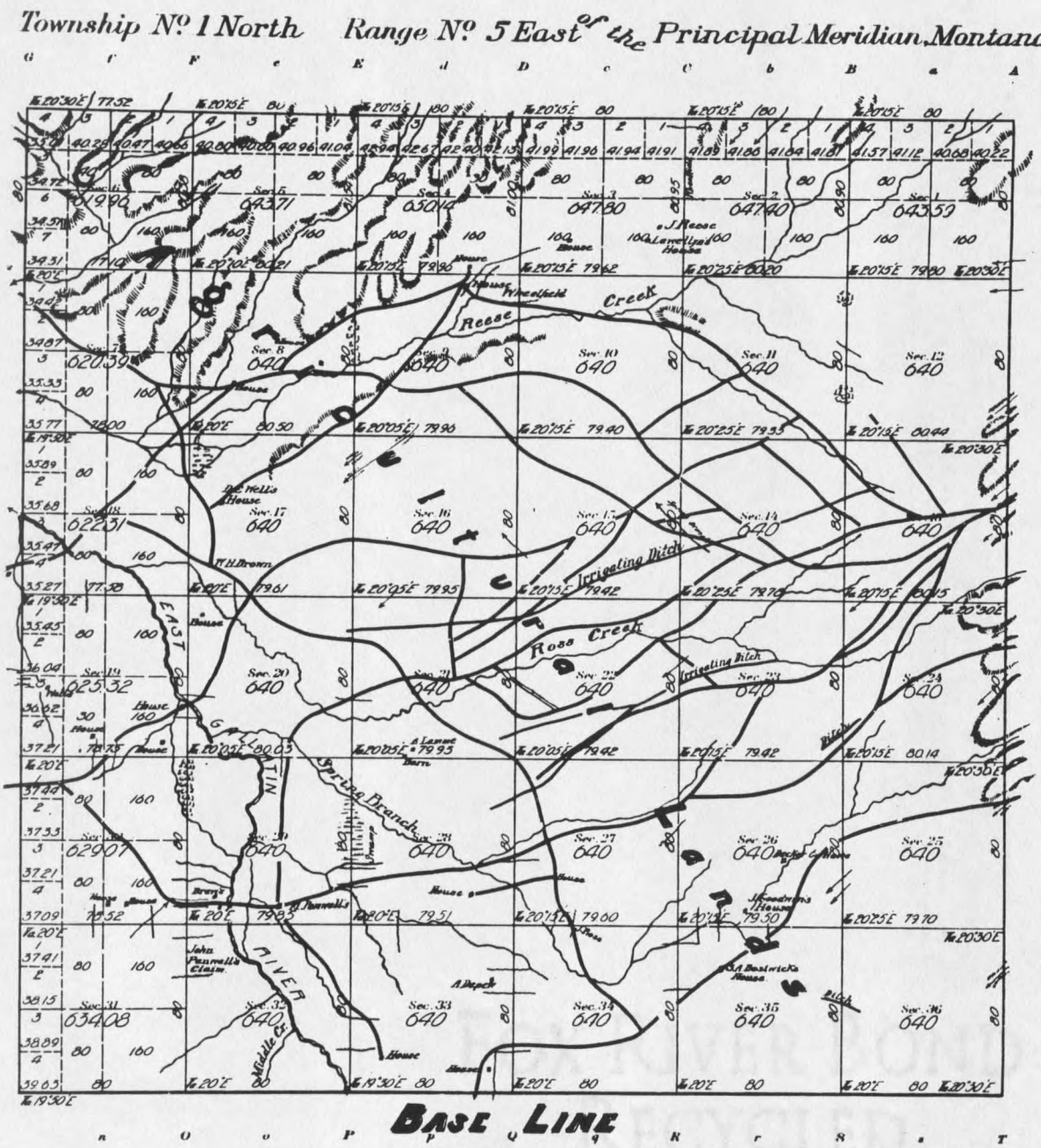


Figure 7. Springhill township (T1NR5E). Surveyor's map, 1868.

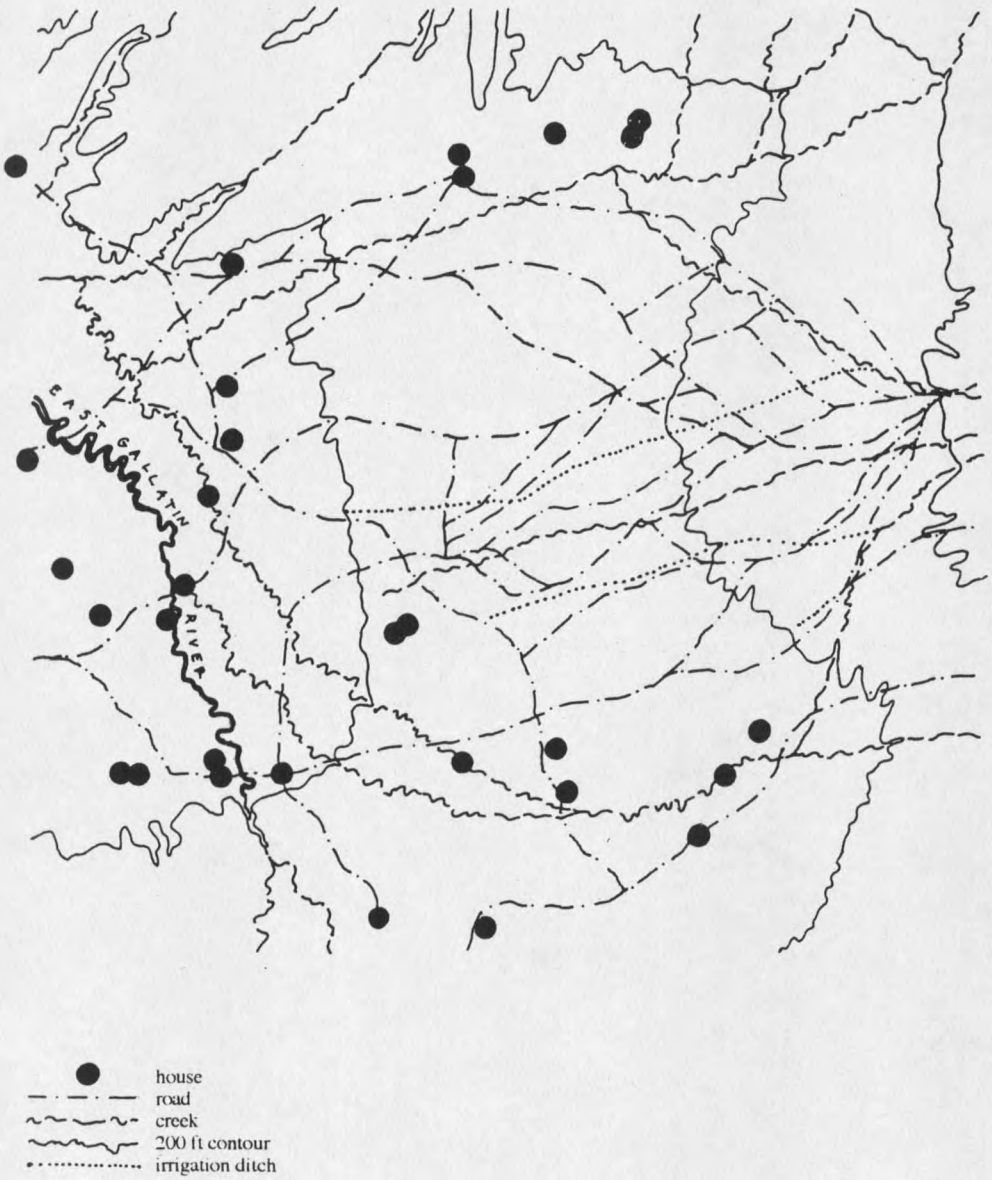


Figure 8. Springhill township. Settlement observed by the surveyors in 1868.

have been considered an agricultural commons by those already farming the surrounding area. They may have been unofficial claims, grazed or farmed by community agreement. While the surveyor notes about thirty houses on his map, he comments that "there are some sixty improved farms in this township" (Charles Jewett, Surveyor's Field Notes 1868, 84), adding evidence to this possibility. Another less likely scenario is that some of these tracks were irrigation ditches, mistaken for roads under a cover of snow as the survey party came through in October. This seems less plausible considering the survey does map a couple of major irrigation ditches already developed through the area that they acknowledged.

The last homestead final proof in the Springhill township was submitted by 1910. The pattern of homestead claims at this point clustered into three groups (figure 9): those in or near to the East Gallatin bottom lands, those in the Reese Creek and tributary drainages to the north, and those between Ross Creek and the South Fork of Ross Creek. It is worth noting that the latter group follows the path of the early established irrigation ditch very closely. Even the later claims in this township appeared to have had relatively easy access to water because smaller creeks were so abundant. The even slope of the low bench land throughout Springhill area, and the many creek drainages flowing through it made it ideal for the excavation of simple ditches with a minimum of labor. As a result, a wide bench land area developed as irrigated farmland very early.

Tracing the homestead settlement process in the township in approximately five year intervals from 1868 to 1896 (figure 10) strengthened the visible pattern of clustering. Related families often laid claims simultaneously or within a few months of each other (Karsmizki and Brownell 1983a). This points out not only their desire for community, but perhaps specifically the need to share labor in making the land productive.

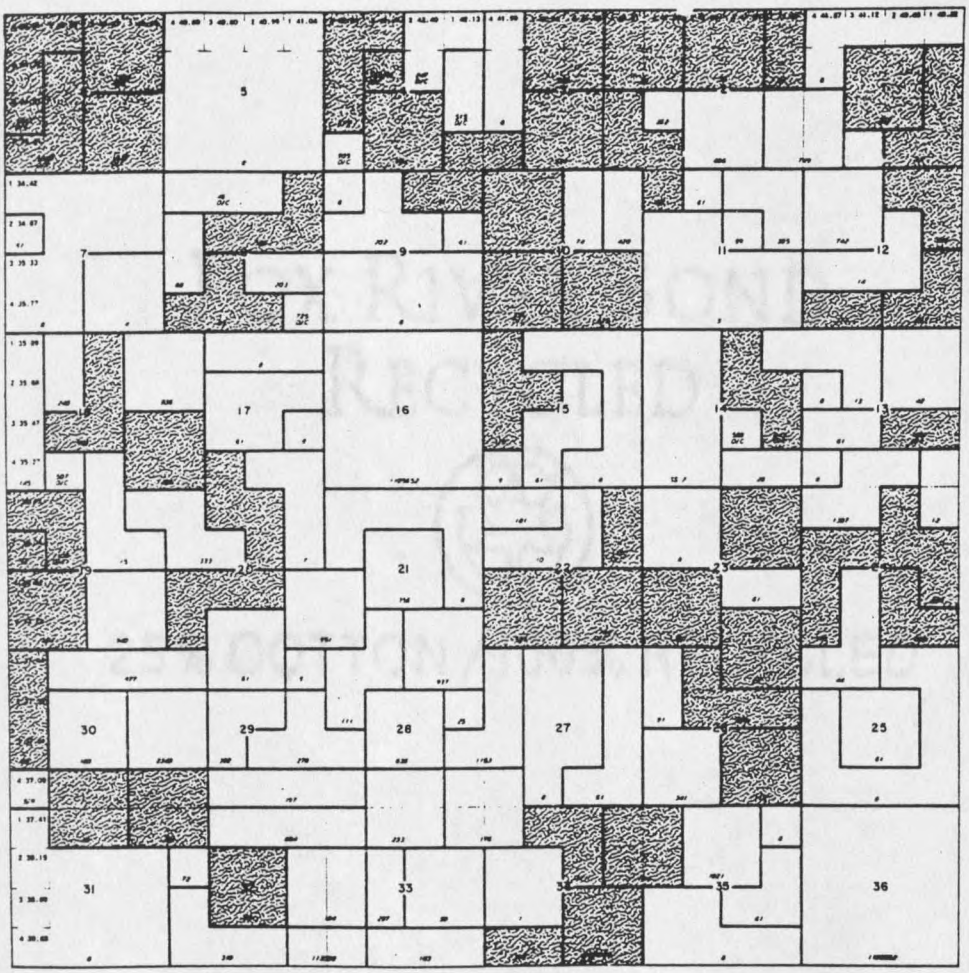
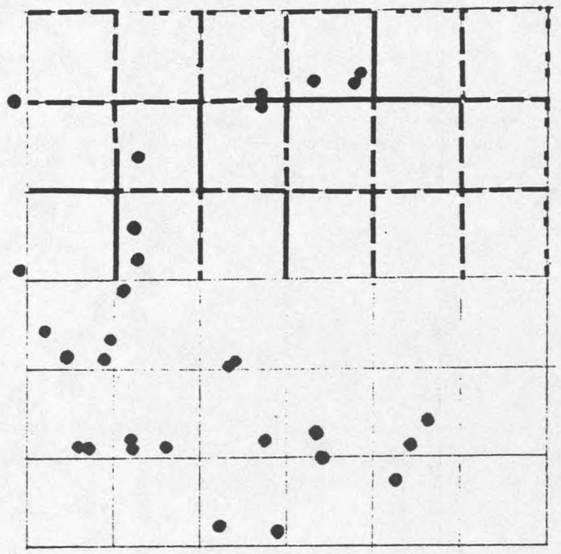
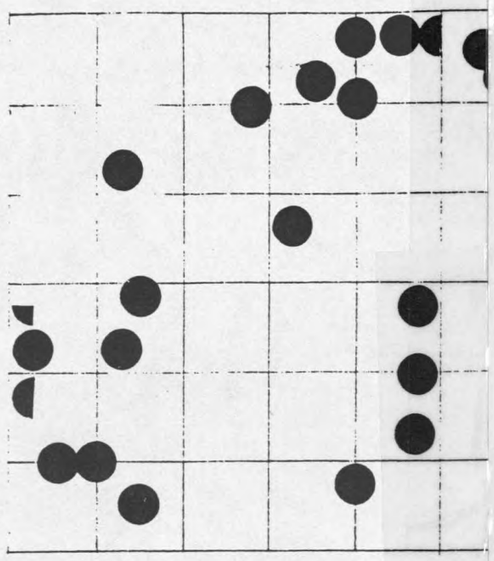


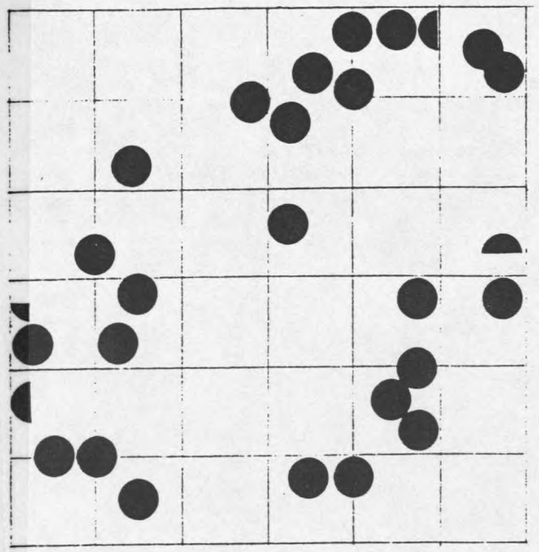
Figure 9. Springhill township. All homestead settlement by 1910. (© Karsmizki and Brownell 1983a, adapted from Land Status and Use Record Map n.d.)



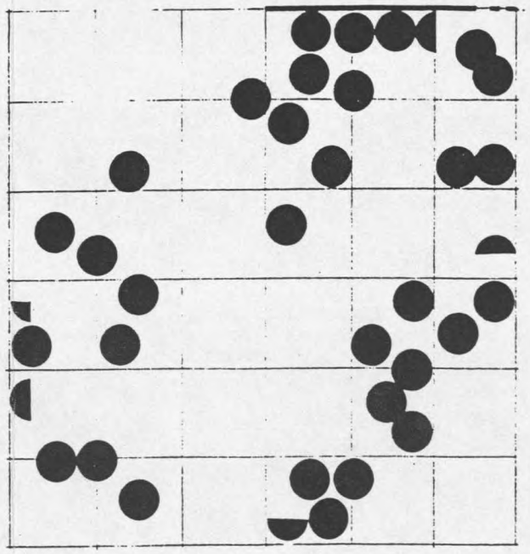
1868 surveyor's appraisal
● houses noted on surveyor's map



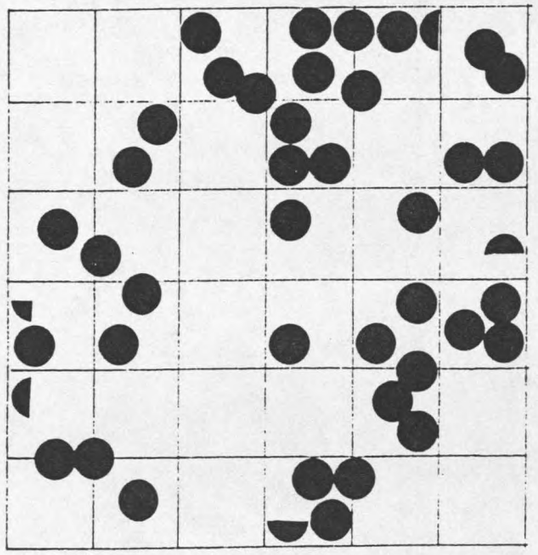
1872 initial settlement of homestead patents



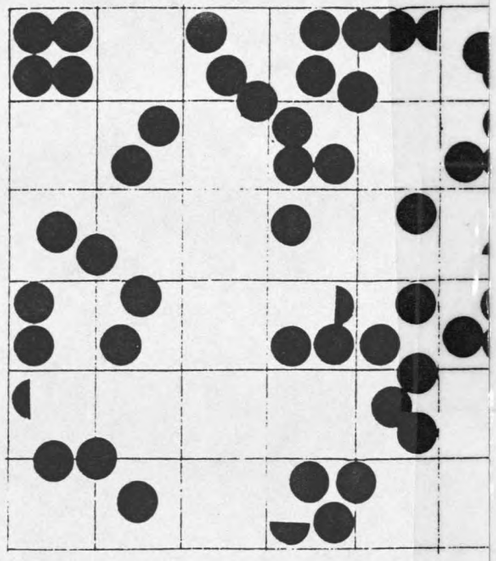
1877 initial settlement and patented homesteads



1882 initial settlement and patented homesteads
1885 surveyor's appraisal



1887 initial settlement and patented homesteads



1896 initial settlement and patented homesteads

1/4 section patented or patent in progress

first rate
second rate
third rate

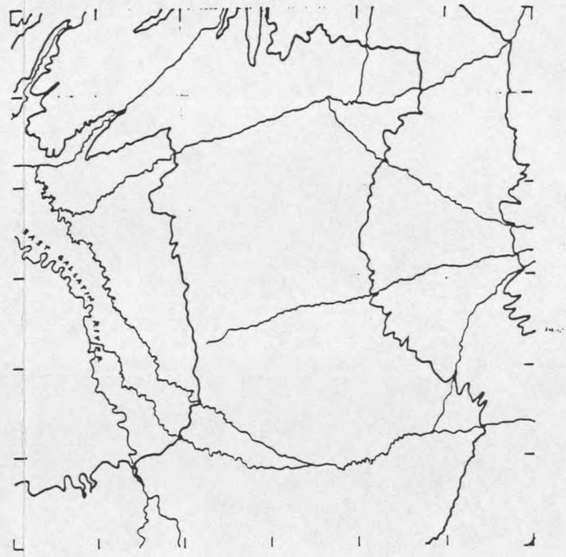


Figure 10. Springhill township. Homestead settlement process in approximately five year intervals fr1868, and surveyors' appraisals of soils quality in 1868 and 1885.

The surveyors' field notes on Springhill were examined for evaluations of the land. The surveyor noted a rating of the quality of soils from first to fourth rate as his party moved along each section boundary. For the purposes of analysis, the settlement pattern in 1868 was superimposed with a grid that was keyed to represent the surveyor's rating (figure 10). There was a fairly strong correlation between the areas which settlers deemed valuable and productive soils, and the areas that rated high in the surveyor's appraisal. The surveyor undoubtedly responded to evidence of productivity in his assessment. Seventeen years later in 1885, a segment of the northern boundary that had been assessed as second and third rate was re-surveyed, and was deemed to consist of first rate soils. Note that by the time of the second survey there were numerous homestead claims along this boundary that had not been present during the earlier survey. This comparison suggests that the surveyors based their appraisal of soils on *visual evidence* of cultivation, productivity, and irrigation.

A view of buildings and roads in this township from a 1987 U.S.G.S. map (figure 11) revealed a similar scattering of agricultural settlements, with a couple of major differences. The Turkey Red Spur line of the Milwaukee railroad passed diagonally through odd-numbered railroad sections by 1913, appropriating private lands as it required them. The line was closed and rails removed in the 1960s. The roads, like at Willow Creek, took on the orthogonal characteristics of the survey lines, indicating that as fences replaced the open range they limited public movement to rights of way between property lines.

The most recent development, however, was the introduction of non-agricultural subdivisions evident in the southeastern part of the township. This recent phenomenon introduced a new twist to perceptions of the valley landscape. As the nearby town of Bozeman grew, the demand for residential building space expanded into outlying areas. This new population influx into the township might ironically be considered a group who

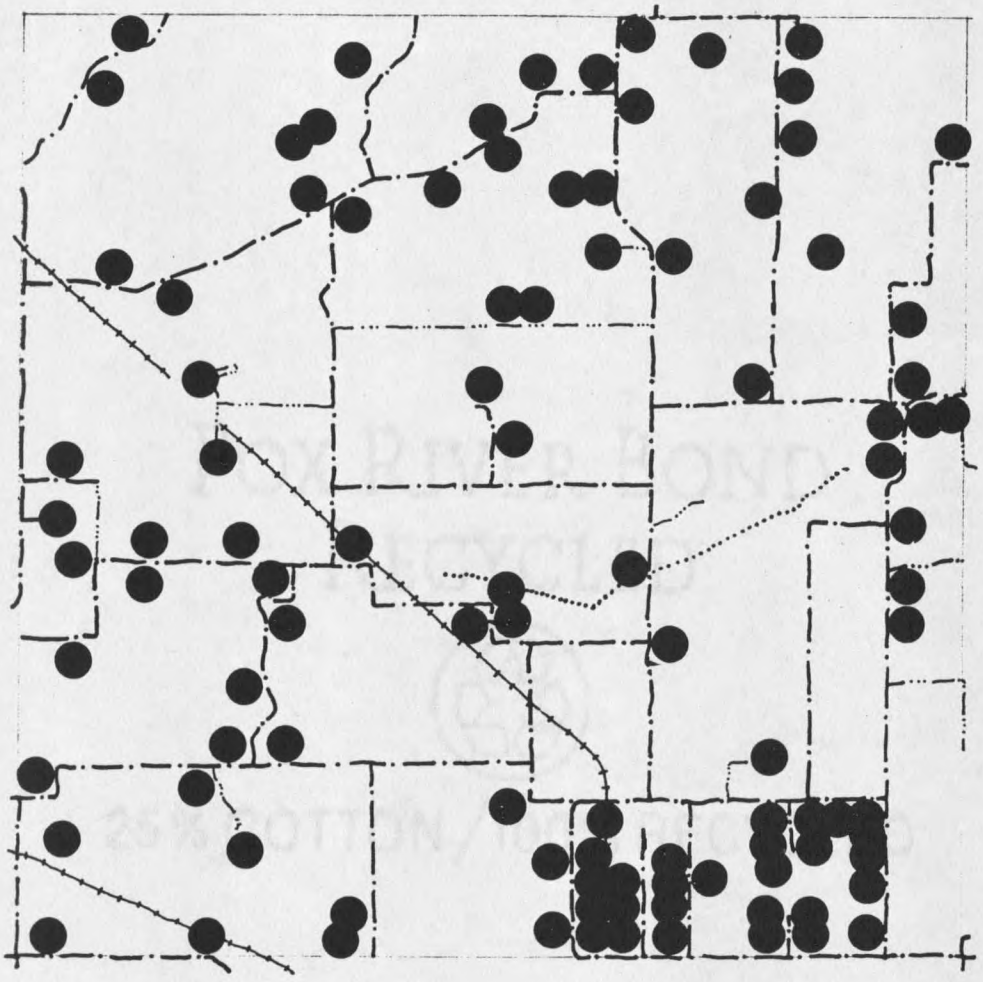


Figure 11. Springhill township. Buildings and roads from 1987 U.S.G.S. maps.

valued the landscape for its openness and uncrowded scale. They were interested in the landscape as a visual amenity, while requiring improved roads for ease of mobility, and daily connection with the support and services of the larger town.

Bridger Creek

It is telling that in 1867 and 1870, during the initial surveys of the Bridger Creek township (T1SR6E), the surveyors made only a partial study of the area (figure 12). They deemed the steeper, more mountainous parts of the township to be of little value as land claims.

> The land fit for agriculture in this township is generally confined to the bottom of the creeks and river, where any fine wheat or barley can be raised. The foothills adjoining the bottom can be cultivated also, but will need irrigation by means of ditches, and the expense of making these is at present too great for the means of the farmer. The hills are covered with excellent grass which will afford pasturage for large herds of cattle and horses. There is timber except on the stream, which are generally bordered with Cottonwood and Willows. (Benjamin Marsh, Surveyor's Field Notes 1867).

> The eastern portion of this township is mountainous, and the balance hills and bench. Township north and east are very rough and mountainous, including the Belt Range [Bridger Range]. There is much pine and fir timber in the mountains, otherwise they are of little value. The soil in this township, where not mountainous or stony, is a rich black loam. (Robert Green, Surveyor's Field Notes 1868).

Early surveyors saw the utility of forested mountains much as the settlers did; their value was limited to resource extraction in the form of construction timber, grazing, and fuel.

The progression of all settlement of federal lands in the township was largely complete within twenty-five years (figure 13). Again the pattern was consistent with others studied. The first claimed lowlands were not only perceived as the most fertile areas in 1868, but they were also nearest to the north edge of Bozeman, making stock and produce very marketable. It was not until 1896 that Northern Pacific was able to make its official claim on what remained of its odd-numbered sections (Control Document Index n.d.), although they had been withdrawn from settlement some years earlier. The railroad

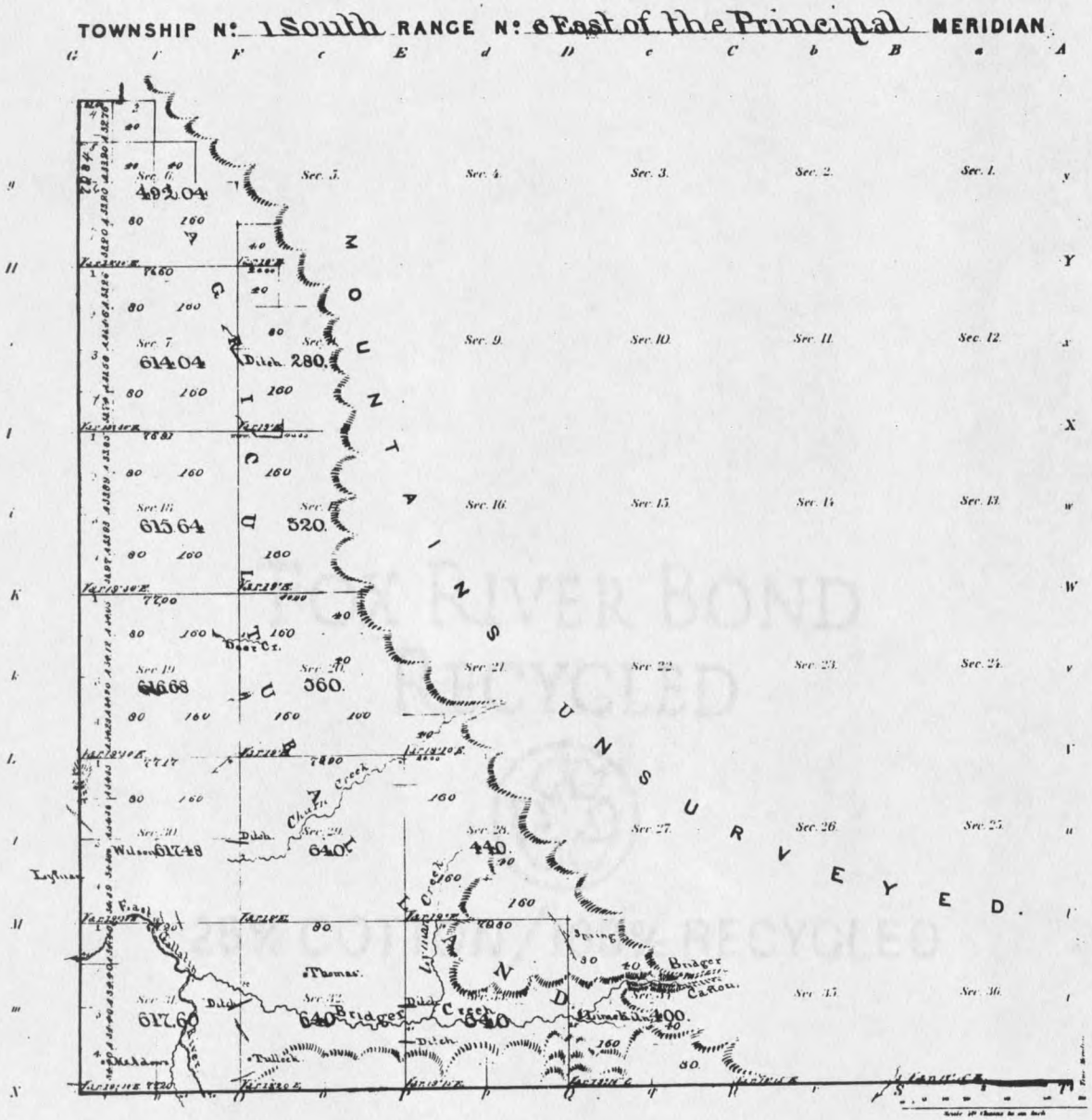
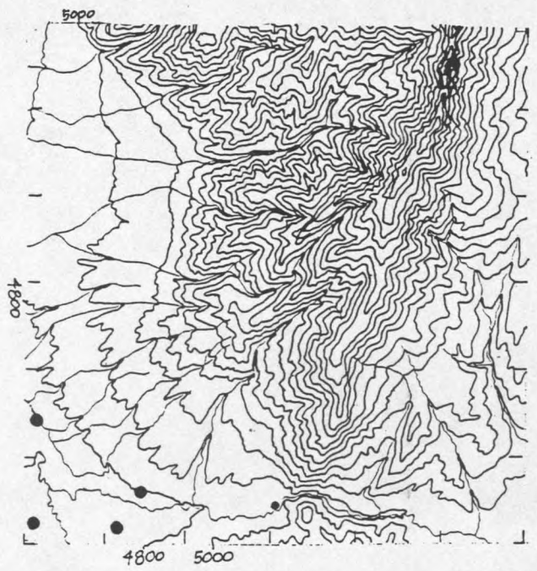
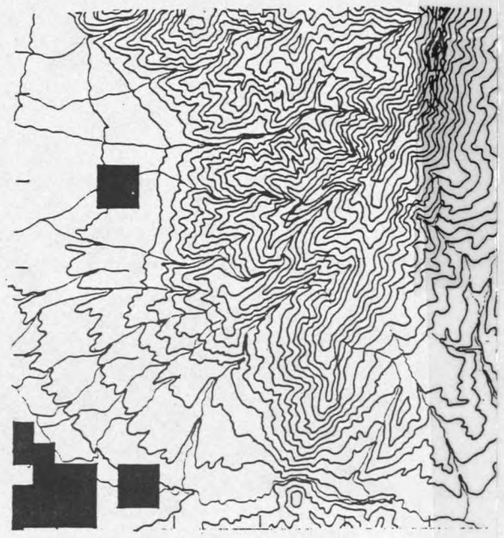


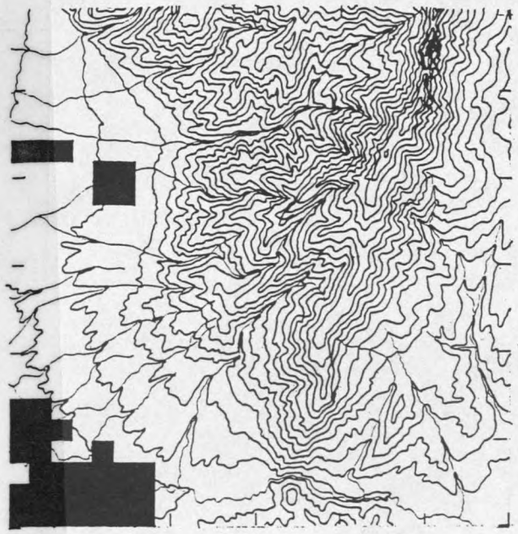
Figure 12. Bridger Creek township (T1SR6E). Surveyor's map, 1868-1870.



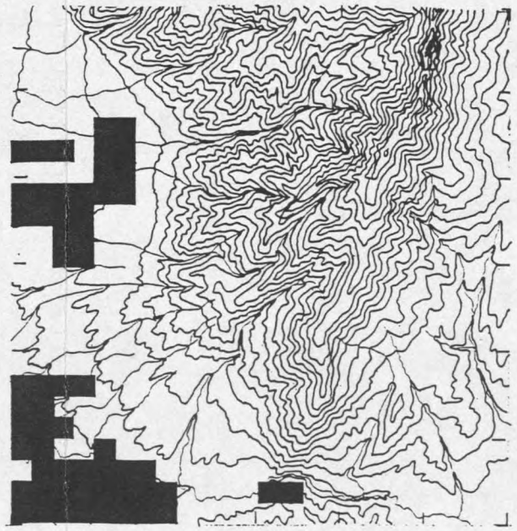
1868



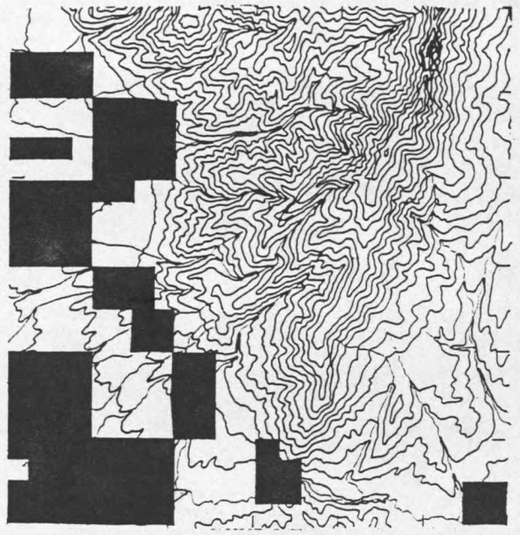
1877



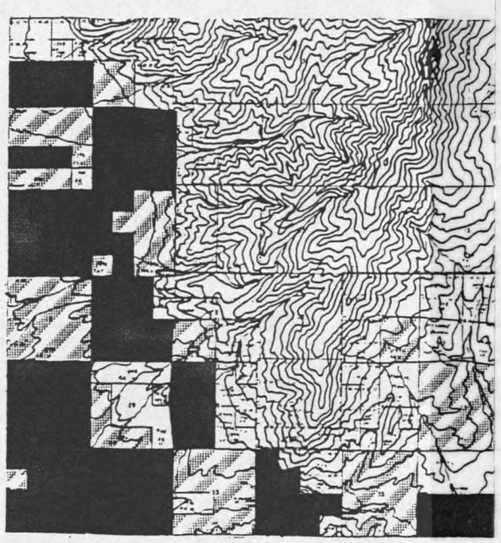
1882



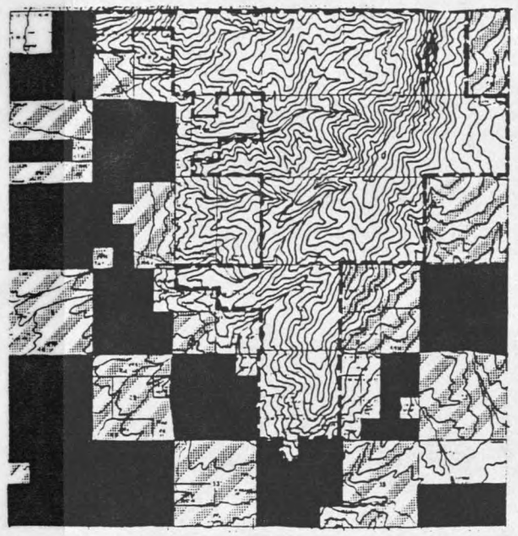
1887



1892



1897



1907

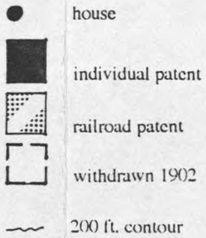


Figure 13. Bridger Creek township. Progression of all claims on public domain 1868 to 1907 in apximately five year intervals.

had an interest in settlement to increase its long-term profitability, but it was also anxious to claim its granted lands for immediate profit (Malone, et al, 1991). Competing interests in the land illustrate its value for both individual and corporate profit.

In 1902, when the General Land Office was assisting in efforts to set aside forest reserves, they thoroughly surveyed the mountainous portion of the township (figure 14). In the same year these lands were withdrawn from settlement (figure 13). The withdrawal of forest reserves reflects a shift in the evaluation of mountainous lands throughout the west (Jackson 1995). There was a growing perception that forest lands were a public amenity that required management and a degree of protection. The importance of the forest as a stabilizer of water drainages was a perception that could not have been overlooked by settlers who relied on mountain creeks for drinking water. It appears, however, that for many years they forested upstream of their own settlements. Continued use of these federal lands as grazing allotments by nearby settlers suggests that an ethic of private control of public lands was still at work.

The three different surveys of parts of this township offer a great opportunity to compare appraisals of overlapping segments (figure 15). A composite of all three reveals some widely differing perceptions of soils in these sections from 1868, 1888, and 1902. These surveyors' ratings were overlaid onto the topography to explore patterns (figure 16). Evidently there was an increasing evaluation of soils at higher elevations over time. A plausible reason for this changing perception is revealed by examining the relationship between the date of each survey and existing agricultural settlement (figure 17). Again the surveyors appear to be influenced in their appraisal of soils by the visual evidence of active farming.

Figure 18 also illustrates some of the man made intrusions on the public domain by 1902. The surveyor noted a large number of roads, wood roads (which may also be stock driveways), and irrigation ditches, many of which crossed into unclaimed federal

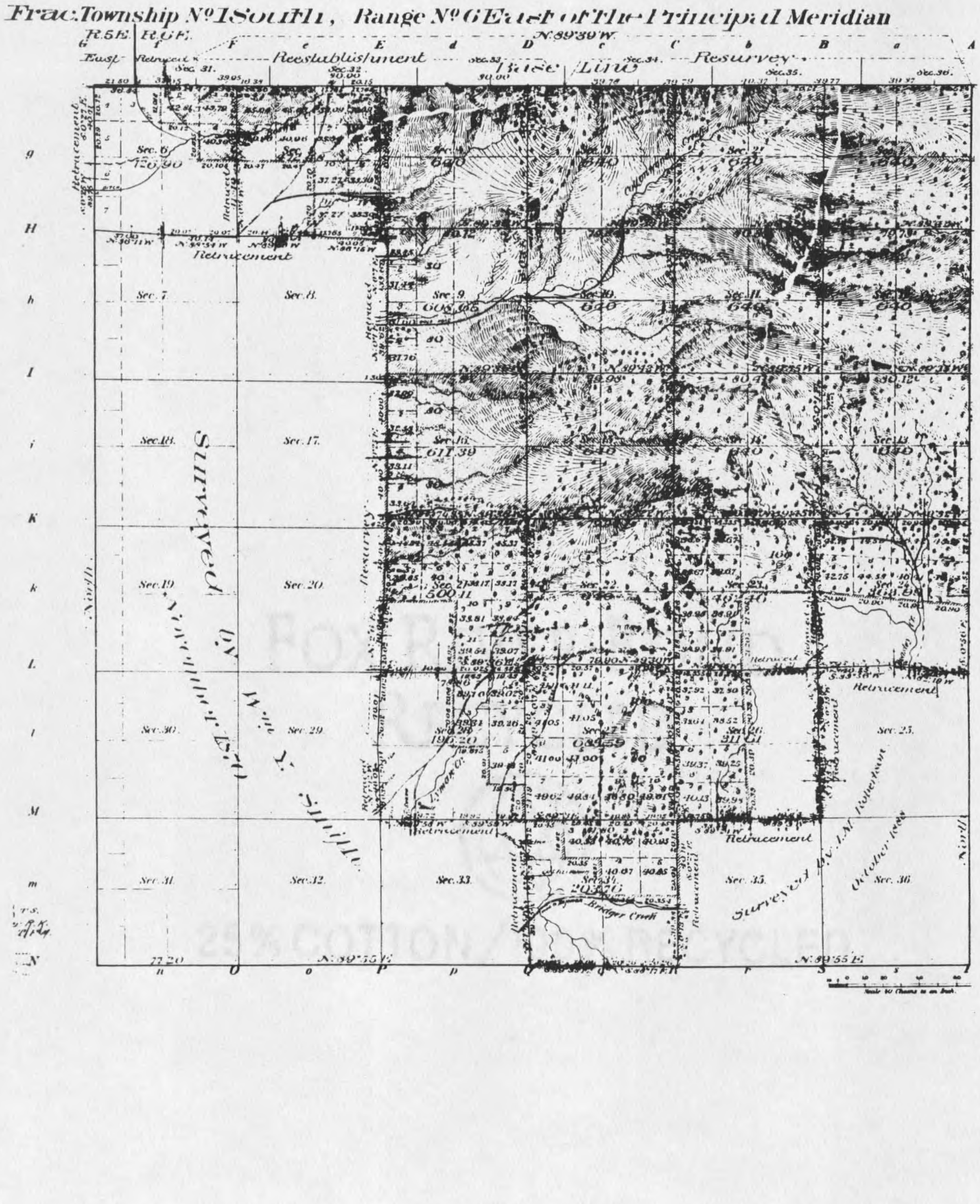


Figure 14. Bridger Creek township. 1902 Surveyor's map.

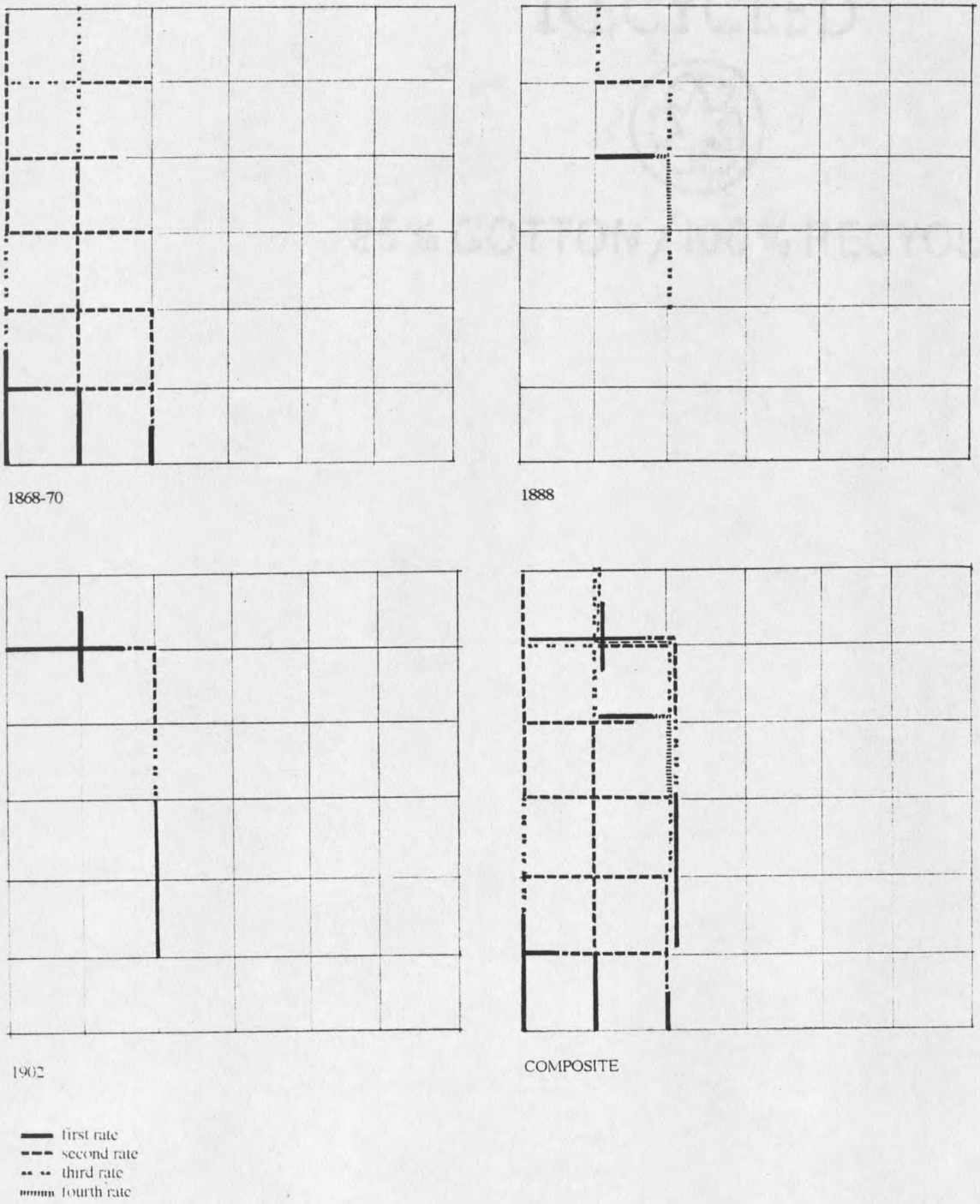
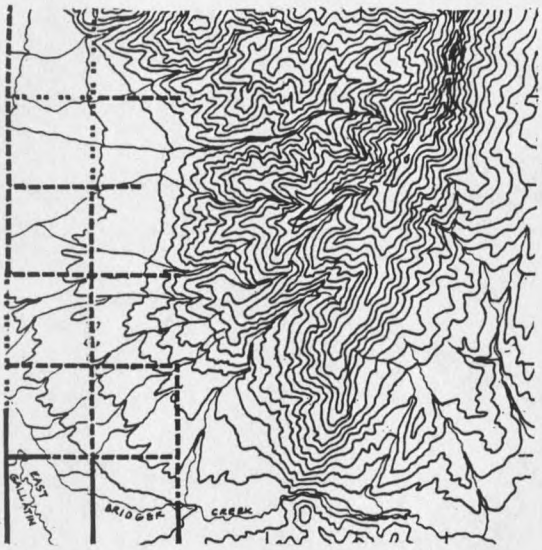
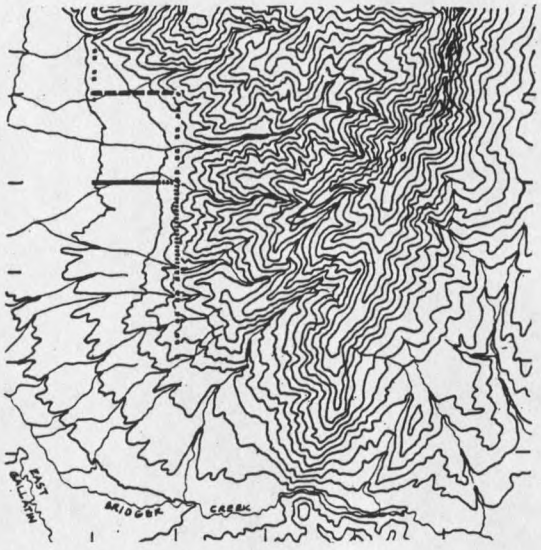


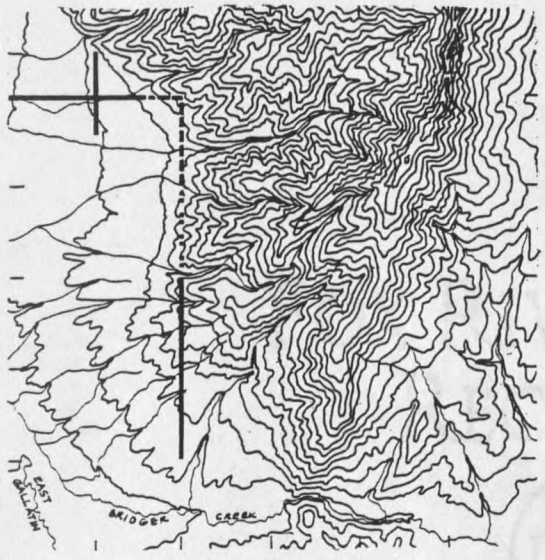
Figure 15. Bridger Creek township. Surveyors' soils appraisals in 1868, 1888, and 1902.



1868-70 surveyor's appraisals



1888 surveyor's appraisal



1902 surveyor's appraisal

first rate
second rate
third rate
fourth rate

Figure 16. Bridger Creek township. Surveyors' appraisals overlaid on topographical maps.

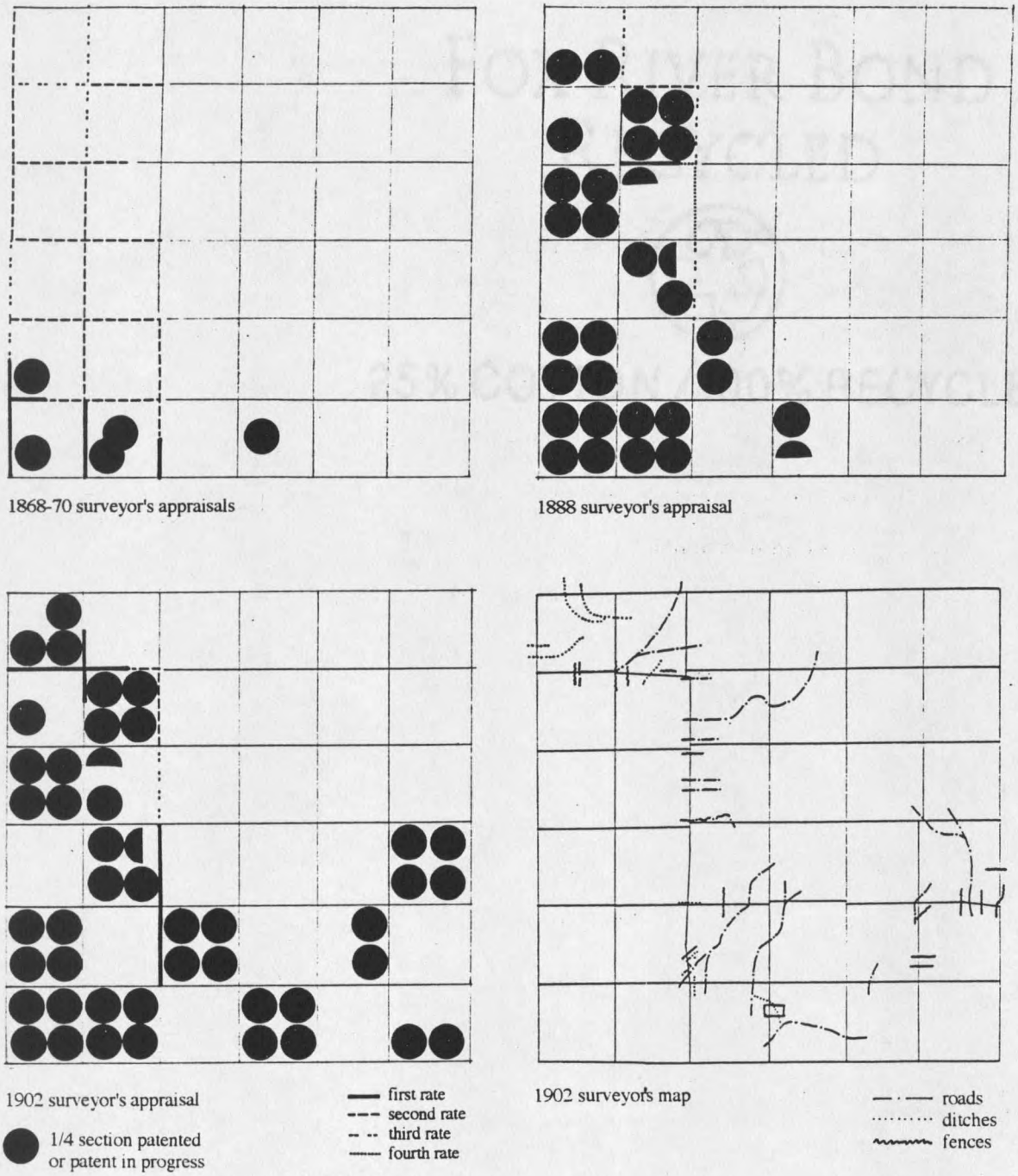


Figure 17. Bridger Creek township. Surveyors' appraisals compared with existing settlement. Lower right: roads and ditches noted on surveyor's map, 1902.

lands. Clearly the community of settlers viewed these lands as commons. It would have been this type of evidence of widespread resource extraction that helped to fuel the push for federal forest reserve management.

By 1987 the township had evolved some very different patterns (figure 18). Formerly widespread agricultural settlement had tended to concentrate in a few low-lying areas. While the uneven bench land was still farmed, the concentration of buildings represents a consolidation of farms. One particularly dense portion represents residential subdivision that has continued to spread into higher elevations in the ten years since the U.S.G.S. map was published. As an indicator of shifting values and perceptions this development reveals a desire not only to take-in the visual and spatial amenities of the agricultural and mountain environment, but to command distant views from increasingly higher elevations. The primary concern of residents in this region has evolved from one of good soils and water underfoot to one of expansive views and dramatic scenery aloft.

Homestead Site Analysis

To take a closer look at individual homestead claims, the placement of the dwelling and farm site on the land claim was studied. Homestead site information was available for only two of the townships studied here. Willow Creek and Springhill were included in Karsmizki and Brownell's extensive homestead study (1983a). This study located original dwelling sites by analyzing aerial photographs of known homesteads, and transferred them onto recent U.S.G.S. maps. A new iteration of these maps is presented here including only the natural features of topography, rivers and creeks. These maps revealed the landscape of each claim as it may have appeared to the settler, with only topography and creeks (figures 19 & 20). Again the date of these claims was the date the patent was made final, meaning that initial settlement occurred at least five to seven years earlier.

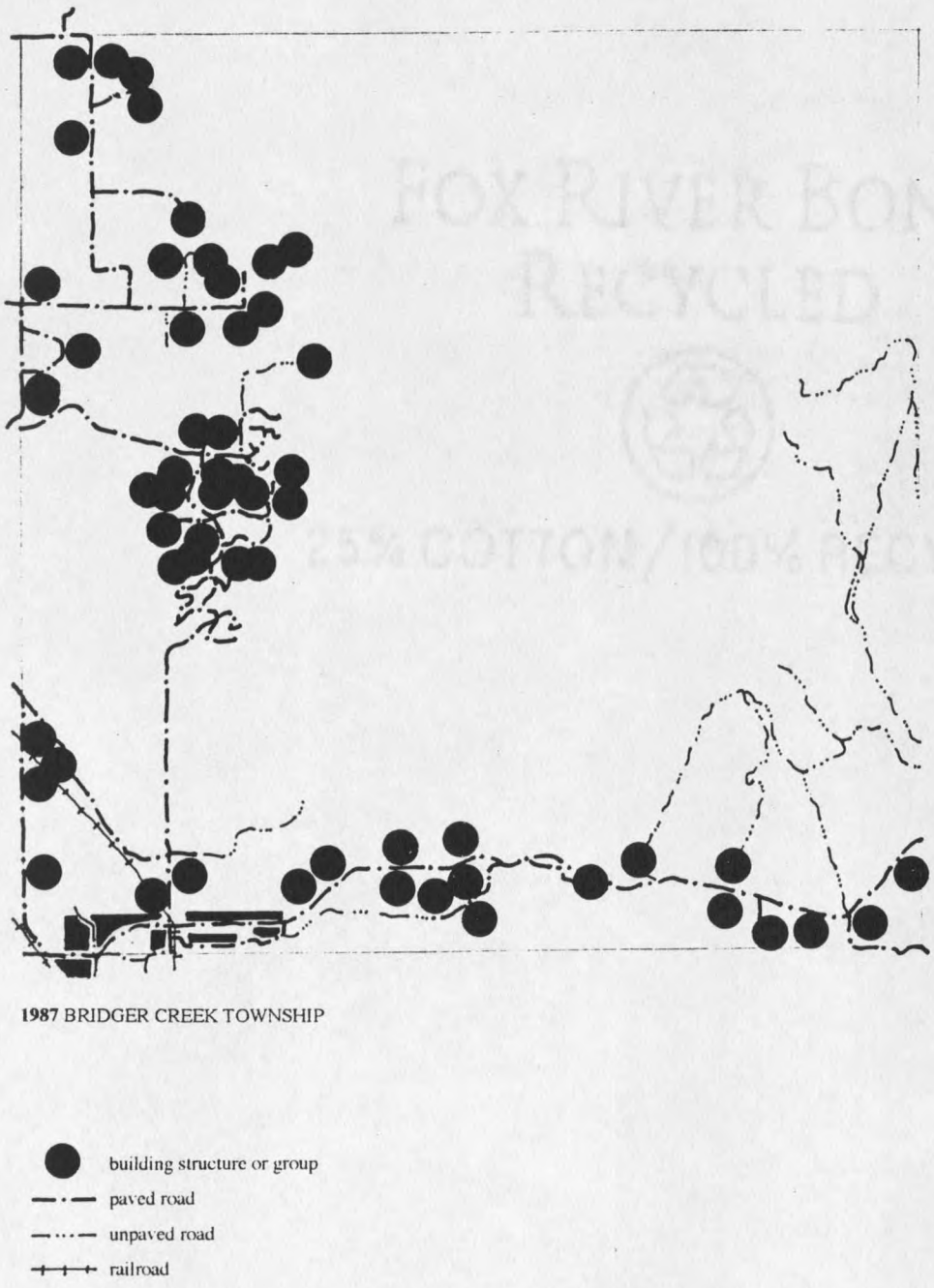


Figure 18. Bridger Creek township. Buildings and roads from 1987 U.S.G.S. maps.

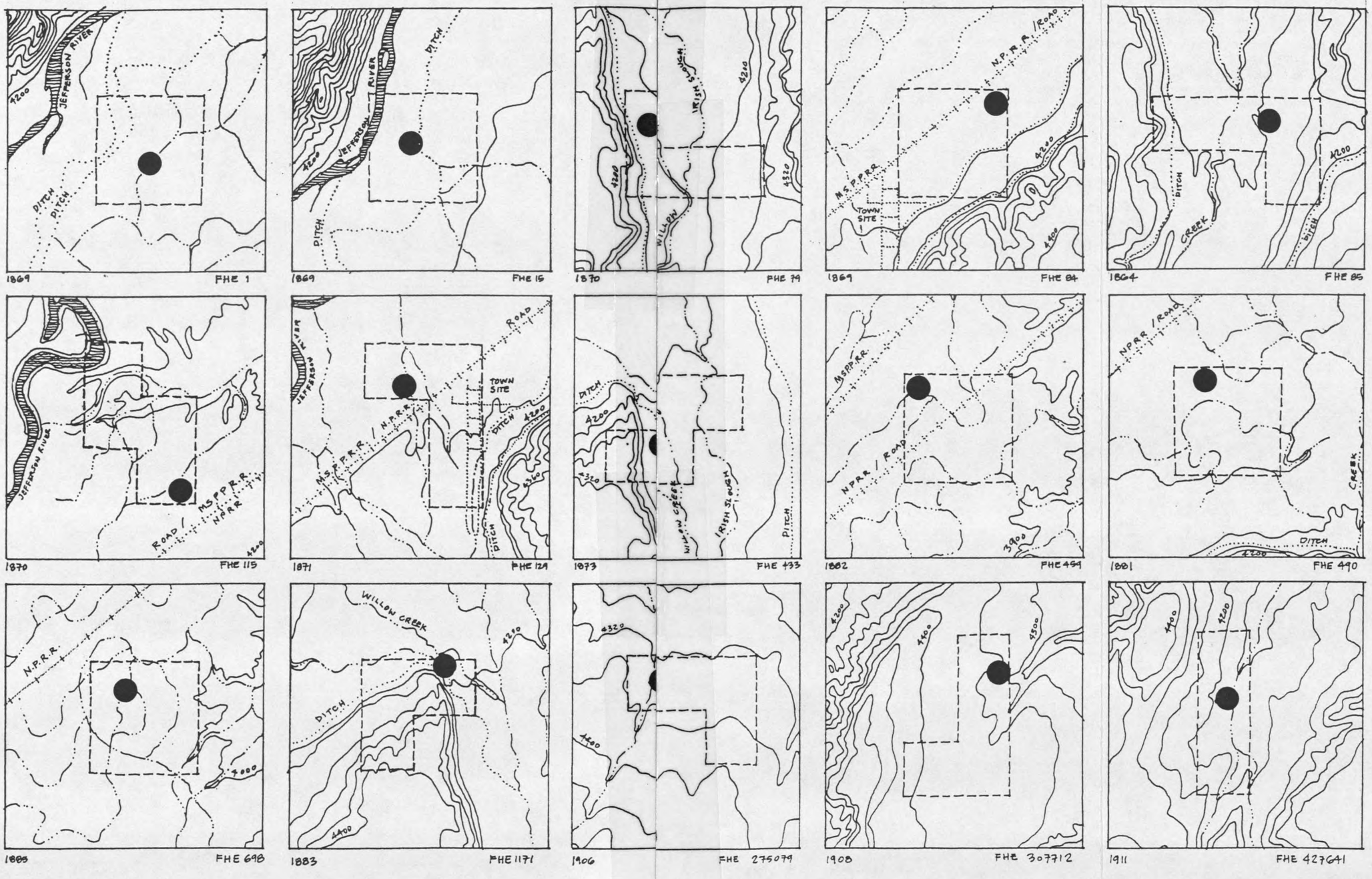


Figure 19. Willow Creek township. Homestead sites located on land claims, dated at year of initial settlement. (Karsmizki and Brownell 1983a).

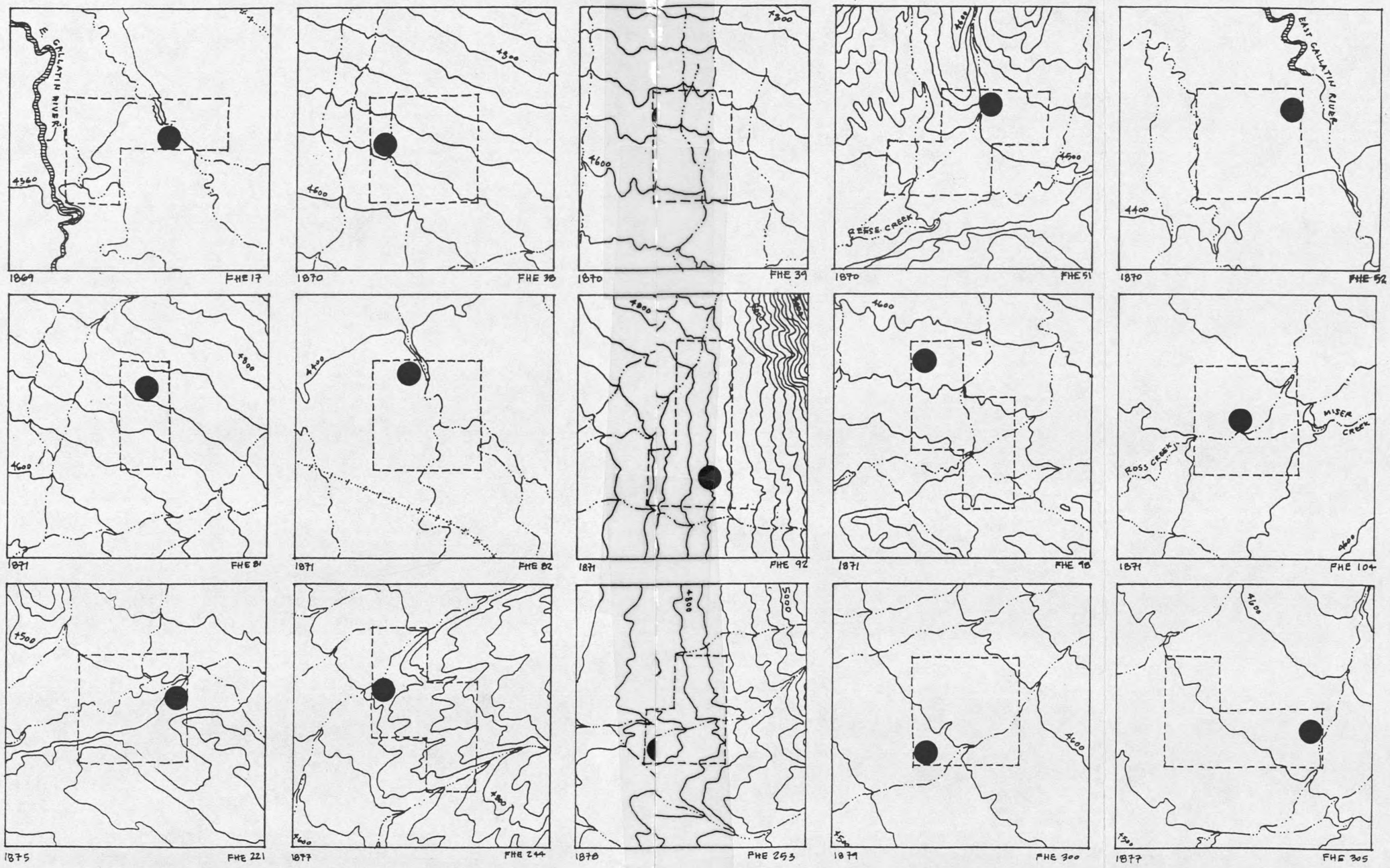


Figure 20. Springhill township. Homestead sites located on land claims, dated at year of initial settlement. (Karsmizki and Brownell 1983a).

In Willow Creek (figure 19) the earlier settlement tended to be at the lowest elevations, and placement of the dwelling was generally at a middle elevation within the claim. One of the characteristics of the lowland claims was that creek water could be very easily channeled in a number of directions to irrigate crops or to bring it close to a desirable dwelling site. This ease of channeling is illustrated in some areas that are riddled with intersecting waterways. The major ditches are shown as later developments, although the date of their construction was not investigated in this study.

After 1881, dwelling sites were all located at a middle or lower elevation on the claim, and near a creek. In these later claims, some of which were at slightly higher elevations in the dry benches, the lower regions may have been more sheltered and more accessible, causing the dwelling to sit lower on the hillside claims. The topography may have provided protection from prevailing winds, as 71% of hillside sites appear to face distinctly toward the east, with a protective hillside to the west.

Analysis of Springhill township's dwelling sites (figure 20) also revealed a strong, but different pattern of orientation. At least 75% of the hillside sites appeared to face south, with the remainder facing west. This is particularly extraordinary when the general topography of the basin faces to the west. Residents of the Springhill township were generally at a higher elevation than Willow Creek, and were subject to deeper snows because of their proximity to the ridge of the Bridger Mountains. It appears that they may have responded to micro climatic conditions that favored exposure to the south winter sun for warmth and snow melt, and may have taken advantage of the Bridger Range as shelter from the coldest eastern storm winds. Dwellings and farm sites tended to sit in the upper half of their claims. Since their water supply was plentiful at all elevations, the reason for this may have been to keep an easy eye on grazing stock.

Proximity to natural surface water is a strong defining characteristic of early dwelling sites. Although smaller creeks may not be shown on the U.S.G.S. map, 14%

showed no visible natural water supply anywhere on the claim. It is possible that running creeks 100 years ago may have altered their course or dried up. Alternatively, the lack of natural water supply may suggest a dependence on early agreements with neighbors for water rights from ditches.

Building Sites

Early farms and ranches consisted of a complex of domestic and agricultural buildings, and the various markings and manipulations of the land associated with agriculture, such as roads, ditches, and fences. The way in which these complexes were laid out suggests the nature of farmsteads, the extent to which they grew and evolved over time, and the relation of their inhabitants to the land and to neighbors. The legal process of homesteading required conspicuous occupation of the land in the form of improvements to establish rights to it. These improvements took the form of dwelling construction, digging of irrigation ditches, construction of fences and corrals, and cultivation of the land.

Proximity to a natural running water source, such as a creek, spring, or river was an early concern in the establishment of viable crop land. Later, the construction of irrigation ditches, canals, wells, and cisterns reduced this imperative. The development of ditches in particular represented a sense that the natural landscape was malleable to human will with large-scale manipulation.

Topography also had an important influence on the choice of building site upon the land. The nature of the land form determined how difficult it would be to get a workable irrigation system to sustain crops. For the most part farmstead sites took advantage of the natural topography as a buffer to the elements, but conditions varied according to micro climate. Proximity to roads or trails reduced isolation, and the

farmstead was often found at the edge of the land claim, rather than the center as they were in the midwest.

Buildings may have been placed in such a way as to increase the surveillance of holdings. Within the building site, landscape was an important delineating device for defining domestic versus agricultural realms. The domain of the dwelling was often separated from the agricultural work yard by a row of trees or a hedge acting as a buffer (Karsmizki and Brownell 1983a). These trees and others also served as a buffer from storm winds.

Dwellings

The domestic unit on the farmstead site consisted of landscape plantings, garden, often an orchard, root cellar, smokehouse, ice house, and outhouse, in addition to the dwelling itself. These ancillary buildings that provided for the preparation and storage of food for the family might be considered extensions of the home. All of these structures were not built at once, nor were they probably planned-for. They took shape over time as need and opportunity arose. Usually the dwelling itself was initially very crude and temporary, and was transformed over time, sometimes with several additions or replacements (Karsmizki and Brownell 1983a). The evolution of the dwelling, and the extent to which an extremely temporary structure was adapted to make it last longer than originally intended, makes it difficult to determine when a dwelling structure on a homestead site could be interpreted as the permanent dwelling.

When completed, farmstead dwellings in the Gallatin Valley tended to be substantial structures. Typical of early settlement was a one and a half story gable ended log structure, often with an 'ell.' For example, within the surveyed Springhill township over 80% of extant homestead dwelling structures were one and a half story log structures built during the initial homestead period (Karsmizki and Brownell 1983a). This typology

also occurred in the townships of Manhattan and Willow Creek, but not with the same frequency.

Balloon frame construction was not only a relatively new construction type in the 1870s, (originating in Chicago in the 1850s), but it also required milled lumber. This required the *availability* of the processed lumber, and capitol for buying the lumber. These factors, of course, were a hindrance to immediate widespread use, especially in a remote valley with little development and no rail transport. Additionally, there was no folk knowledge for wood frame construction, so people lacked the appropriate skills to do it themselves, even if milled lumber had been available. Skilled craftsmen, practiced in the art of balloon frame construction, were also scarce because of the newness of the technique. By the early 1870's some balloon frame structures were beginning to appear, but they often followed the established typology of the log structures. Frame additions were often made to earlier log structures.

Agricultural Buildings

The agricultural outbuildings tended to reflect the successfulness of the farmstead. Karsmizki and Brownell (1983a) suggest that the entire agricultural unit might have consisted of barn, stable, granary, chicken house, hog pens, cow shed, machine shed, wagon shed, coal shed, bunkhouse, mill, and tool shed. Fences and corrals were extensions of the built agricultural work environment, and were listed as improvements that gave evidence of settlement and permanence.

Over time many buildings were reused for different purposes to suit changing needs. For example, the early temporary dwelling may have been reused as a bunkhouse or a chicken house. An early work horse barn may have been added onto for a dairy barn as a market evolved for dairies. Buildings were also dismantled and their lumber reused for new ones. The changes in use and form of buildings indicate a resourcefulness of

materials and labor, and a perception of buildings as transitory. The farmstead itself was a flexible enterprise that was constantly adjusted to take advantage of the changing conditions of the marketplace, or to cope with vicissitudes of life, family and weather. Early in the settlement process, both agricultural and domestic buildings were log structures, which were later replaced with light wood frame, and in a few cases timber framed structures. Although the logs were readily available and inexpensive, the method consumed time and energy in construction, and tended to limit the size of the structure.

The variety of outbuilding types on the farmstead site suggested subsistence activities and diversification for economic survival. Barns, stables, chicken houses, and granaries were by far the most common of the agricultural outbuilding types that remained on original farmstead sites in the Gallatin Valley (Karsmizki and Brownell 1983a). Homestead sites that were continuously occupied since the initial patent date tended to suggest the suitability and successfulness of the agricultural land, which may have lead to permanence of architectural features of the original farmstead.

From the Journal of an Early Settler

Although she was not a typical settler in the Gallatin Valley, Isabelle Randall's letters to her family in England in 1885 reflect a wide range of sentiments about the landscape that surrounded her ranch near Moreland (now Manhattan). Her education, her free time, and her perspective as a foreigner enabled her to write articulately about her perceptions of ranching life in the valley. She was probably more active in the ranch operations than many women in that time because she had no children to raise and had domestic help part of the time. Perhaps because of her mobility she was acutely aware of the texture and condition of the ground:

> We rode next morning through the foothills. The ground was, of course, frozen as hard as a brick, so it was not very good "going." It never is out here, for that

> matter, as the ground is always as hard as a rock form frost or drought, or else covered with snow, or sticky as glue from wet. (Randall 1887, 22).

> Yesterday Jem and I drove to Bozeman...crossed one river and several creeks...It was eighteen miles of an abominable road full of great round stones; the smallest as big as a cricket-ball and some a good deal larger than a man's head, and then, when we got within five miles of Bozeman, and amongst the settlements, we got into lanes, i.e. where the road is fenced on both sides. Here the soil was a rich black loam, and very wet, and the road fearfully cut up by the waggon-wheels; so our wheels were nearly up to the axles in ruts. (Randall 1887, 132).

> About three inches of snow fell, so we were able to use the bob sleighs. That is certainly a delightful way to get over the ground... And with the whole prairie to run over, it does not much matter where they go. (Randall 1887, 151).

The siting of the 160 acre ranch, which they bought rather than homesteaded, was typical of the earliest settlements in the valley, and Randall's preference for wooded settings was reflected in her remarks:

> ...our ranche was down on the river bottom, all amongst the trees and brush. This country is quite destitute of such ornaments, except on the river bottoms, though the high mountains are covered with a dense growth of pines. (Randall 1887, 56).

Availability of water for irrigation, for livestock, and for fishing emerged as a prominent concern, but was not mentioned with regard to supplying the house. The number and organization of buildings on the ranch were also typical of other farmsteads:

> All we've done in the way of building is a new stable, a yard in the shape of a quadrangle, white sheds all round, and the stone dairy, and divers[e] out-houses, pig-styes, chicken-house, etc. From our experience of this, building is still a very expensive amusement... (Randall 1887, 77).

These structures were accompanied by numerous corrals, a round pen, a two acre fenced garden plot for "a fruit and flower garden", and large pig pens. They reflected a diversity in stock raising that was characteristic of farmsteads throughout the valley.

Awareness of the structure of buildings and fences came mostly from a level of involvement in the construction process, or from careful observation during construction:

> ...we have just built a capital hen-house of logs, laid one on top of the other, with the chinks filled up with mortar... (Randall 1887, 55).

> I've been helping Jem to "fix-up" the fences. They use what are called "snake" fences a good deal out here, which are made without any posts, by simple laying of poles one over the other. They are called "snake" fences because they don't go straight, but form an angle where the poles overlap each other... (Randall 1887, 61).

> Potatoes, and in fact everything which we don't want to have frozen, have to be stored in an underground cellar, at a depth of about eight feet. They dig a hole in the ground about eight feet deep, eight to ten feet long and seven to eight feet wide. Then they make a door-way with steps going down into the hole and roof it all over, piling up the earth taken out to a height of four feet. The first houses in this country were made in the same way and were called "dug-outs." (Randall 1887, 133).

> The stables are desperately cold, being built of wood, often only a single half-inch plank. Ours are built of double boards, with a space of eight inches stuffed with straw between the boards... (Randall 1887, 46).

Her description of the house, the most recent part of which was built about 1872, and the earlier parts not more than ten years before that, reflected the typical incremental growth of dwellings described above, beginning with a simple cabin, which was subsequently added onto:

> ...there is the new part of the house, two stories high, consisting of hall, our bed-room and sitting room on each side of the hall, and up-stairs two bed-rooms. Then there is the old part of the house, immediately behind and joined on to the new part, consisting of three cabins in a row, all joined together, and beyond them a stone dairy. The new two-storey part of the house is built of carefully-hewn logs, stained brown, and looks rather nice; the old part is of unhewn logs. The roof is all made of shingles... (Randall 1887, 76).

Randall describes her sense of an expansive, naturally bounded landscape of open range, in which there was clearly a sense of private dominion over public lands:

> ...the Western stock-man has his range free, but his stock run in common with several other peoples', and are not fenced in except for the natural boundaries of the range, such as rivers or chains of mountains. Thus our range extends over some three or four hundred thousand acres, and is bounded on three sides by rivers and on one side by a chain of high mountains. ...The cowboy on his hardy pony is the Western rancher's wire fence... (Randall 1887, 121).

It is apparent that there was competition for private control of public lands, and political rallying took place even while the region was still a territiory. She saw that stock owners clearly held sway in the use of public lands in the Gallatin, and considered themselves a controlling class:

> They call the farmers here "grangers," as distinct from ranch-men or stock-men, and it is rather a term of reproach -- not quite like that, either -- but still the granger is held in low estimation by the stock-man. In Montana the latter is king, and all the laws seem framed to his advantage and to the disadvantage of the granger. (Randall 1887, 121).

During her first winter in the Gallatin, Randall remarked on her impressions of overgrazing, and the hazard of not feeding cattle through the winter:

> It's a great shame the way some people neglect their cattle out here. Those which are right back in the hills where the grass is good do well enough; but those which are down among the settlements, where feed is so scarce, ought to be fed. A small bunch of all ages, from a six months' calf to very old cows, comes past here every day. They make furious attacks on our hay corral; even barbed wire hardly stops them, and they get terribly cut trying to get through.... It will be interesting to watch if they get through the winter. (Randall 1887, 46).

The well-being of all the livestock in the cold weather seems to have beeen an important concern:

> A horse's life out here during the winter in a stable can hardly be a happy one. ...in the morning, in very cold weather, icicles hang from the horses' noses and eyelids, and their bodies are white with frost! ...If they are out of doors they can move about to keep warm, and the very fact of having to paw for their food must help to keep up the circulation... (Randall 1887, 144).

> We have got any amount of little pigs running about... They were born in the brush in the very coldest weather, forty below zero... Most of them got their ears and tails frozen off, which gives them a rather grotesque appearance. (Randall 1887, 146).

In her second winter she perceived a changing climate -- a variation of the concept "rain follows the plow." Ironically it was in early December 1886, a few weeks before the icy winter storms in which thousands of cattle were lost throughout the Montana Territory, when she wrote:

> The weather is simply perfect, the sun shining all day, and still quite warm. Everyone says that the climate is getting less severe, and I suppose the more the country gets settled, the milder the winters will become. At least, that seems to have been the case in other Western States, so I don't see why Montana shouldn't follow suit. (Randall 1887, 140).

During that winter their neighbor, Charles Anceny, just a few miles south of them lost all but 76 of 2,400 head of cattle.

Isabelle Randall's perceptions of the environment in which she lived reflected a keen awareness of the weather and its effects not only on life indoors, but on the condition of the ground, and the health of the livestock. Warm spells in the winter and the moderate spring and summer weather delighted her. Involvement with the outdoor work on the ranch gave her the opportunity to appreciate the expansive open range, and to become familiar with several construction techniques used during the time. She expressed an intuitive understanding of the hazards of overgrazing combined with the harsh winters. Her comments foreshadowed the catastrophic losses suffered by ranchers throughout the high plains in the winter of 1886-1887. She shared the belief with other settlers of the region, however, that the process of settlement and land use was perceptibly changing the climate.

Conclusion

Perceptions of the Gallatin Valley landscape shifted, sometimes dramatically, with the way in which people made a living. The earliest known dwellers of the valley, for example, perceived its expanses as an open hunting ground abundant with game. Ranchers saw the un-fenced public domain as a resource specifically reserved for grazing cattle. Homesteaders perceived the valley as fertile, well-watered farm ground, well connected to markets for produce. The railroad companies interpreted the settled areas of the valley as open territory for the establishment of lines, and the expansion of corporate power and profits. Perceptual priorities were set by the most pressing needs. When settlers required timber for the construction of their dwellings, they perceived the nearby forests in the public domain as a tremendous asset for the extraction of resources. Their choices of land to claim depended at first on prevailing perceptions of good soils, and later on visual evidence of productivity. As a result successful settlement led to more

successful settlement in the surrounding region. Visual evidence -- or lack of evidence -- of productivity had a profound influence on the surveyors' appraisal of soils in the region.

Settlers' survival depended on understanding the importance of water sources and how to make the best use of them. There was an inverse relationship between proximity to water and work -- greater proximity meant less work. Water rights were highly prized and often contested. The land was looked at with an eye to its potential -- how much work it would take to make it productive and profitable. Many settlers were arriving from milder climates -- in particular Missouri -- so the harsh winters required adaptation for their own well-being and that of their livestock.

People based their choices of farmstead site on the interconnected influences of terrain, water, transportation routes, and micro climate. Settlement at higher elevation meant deep snows, a shorter growing season, steep access, and costly irrigation. By dwelling on the place -- often in temporary conditions for the first months or years -- and working the land, homesteaders became intimately acquainted with the complexities that it had to offer. They had considerable experience on the land that informed their choice of permanent dwelling place. Through the construction of a temporary dwelling settlers had an opportunity to test local conditions for ground moisture, flooding, or micro climate. The location of final homestead dwellings may have represented their revised knowledge of the site, based on experience. Their perception of the soils, topography, and micro climate were haptic in nature.

CHAPTER 5

CASE STUDIES

Introduction

The following is a brief presentation of each of the three sites studied. In describing the siting characteristics, the plan organization of buildings, and the scale relationships of buildings, the taxonomies of Steven Juroszek (1991) were adopted from his thesis "Characteristics and Patterns of Rural Environments." In his study of farmsteads in King County, Washington, he presents six distinct types of elevated platform on which farmsteads are typically built: Rising platform, descending platform, intermediate platform, isolated platform, linear platform, and gradual platform (figure 21).

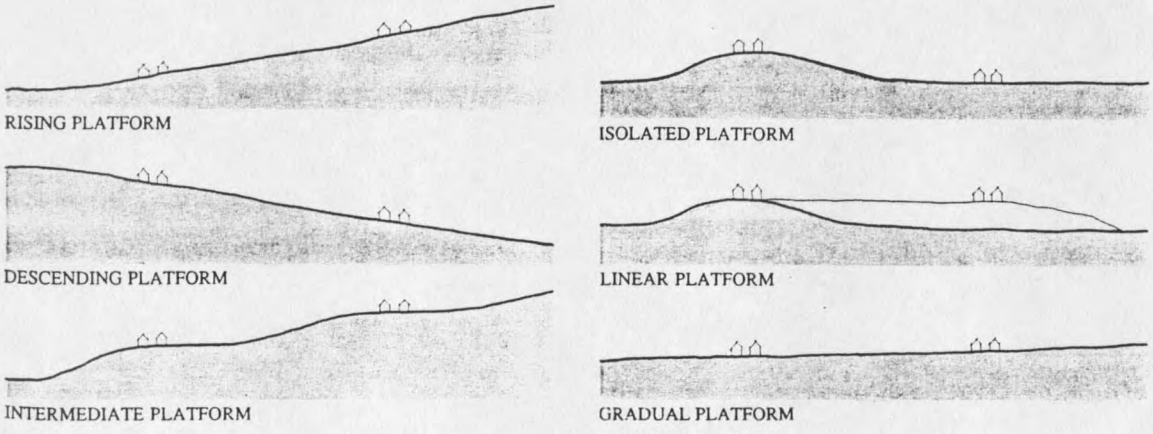


Figure 21. Typical farmstead building site types, from Juroszek (1991). Reproduced by permission of the author.

Juroszek also defines three types of building organization -- or site plan -- which are often reinforced by the land form or by vegetative elements. The three basic types are: Clustered, linear, and dispersed (figure 22).

Figure 22. Farmstead site plan types defined by Juroszek (1991). Reproduced by permission of the author.

The relative size of buildings are characterized by Juroszek's three types (figure 23). Primary structures are the largest in terms of height and square footage. Secondary scale buildings are smaller in height and square footage, and may be agricultural outbuildings or dwelling structures. Tertiary buildings are the smallest in terms of height and square footage, and also may occur in dwelling structures or agricultural outbuildings (Juroszek 1991).

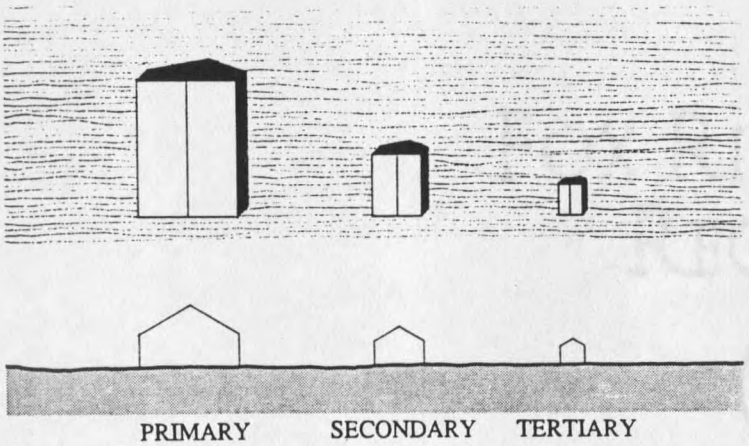


Figure 23. Farm building scales, from Juroszek. Reproduced by permission of the author.

Each of the following sites is presented in terms of some simple physical characteristics of its size and layout, with site plan drawings, and building photographs. A topographical plan drawing of the building site in each case illustrates the relationships between buildings and topography. Lastly, a reconstruction of the growth of the farmstead over a period of time is represented by a series of site plan drawings. In each case these drawings are constructed from information related by the informants during the interviews, and mainly represent their combined interpretation of the farmstead in former periods. Hence this representation of growth is not necessarily a historically accurate one, but instead represents perceptions of growth and change. The information and illustrations presented in this chapter were used as reference material for subsequent chapters of analysis.

Case Study: Site #1

General Character

The first site under study was about 130 acres near the East Gallatin River. It consisted of mostly sub-irrigated river bottom lands, with low foothills which were once a part of the ranch. It was irregular in shape, because of the incremental way in which lands were acquired and sold. It was bordered by a combination of unpaved roads, river, and trees. The land was gently sloping from the east edge toward the river and the west generally. The land use was about 50% small grazing pastures for a variety of stock, 40% planted in grass hay and alfalfa, and 10% small pens, corrals, and buildings. The hay fields were used seasonally for stock grazing also. The buildings were situated on the highest part, at the center of the eastern edge on the road, about a quarter of a mile from the nearest neighbor. There was a creek which ran year round passing across the land in a westward direction, about 200 yards south of the building site. A second very small creek, which was seasonal also ran westward immediately north of the building site. The

gravel road which forms the entire eastern boundary, was cut into the steep edge of an irregular bench which rose to an average height of about fifteen feet above the pasture land.

Between about 1910 and 1940 the ranch ran a dairy and a breeding operation, specializing in high production Brown Swiss dairy stock. They farmed their own hay and grain to feed livestock, and also raised registered hogs. In the 1940s, however, the operation entirely shifted to breeding and raising Shetland ponies. The ranch averaged 150 ponies, but some years they had 250. By the 1960s the children in the family had outgrown the ponies, and it was no longer easy to break them, so the operation shifted again, this time to cattle and sheep. The operation at the time of the study was breeding and raising horses and bison.

Buildings

The buildings formed a tight cluster, centered on the oldest barn, and sat on an intermediate platform at the eastern boundary. A topographical site plan illustrates the relationship of buildings to land form (figure 24). About 32% of the 19 buildings were primary structures in their massing, including the old barn, the pony barn, clinic buildings, and the hay shed (figure 25). About 37% of the structures were secondary in massing. These included the house, shop, grain bins, and loafing sheds. The remaining 31% of the structures were tertiary in size and scale, and included such structures as an old milk house, small loafing sheds, and shelters for stock. All buildings sat strictly parallel and perpendicular to each other on north, south, east, and west coordinates, but with no consistency in the orientation of gable roof, or door openings. Construction of the buildings varied, including light wood frame, pole construction, concrete masonry units, poured concrete, and brick (figure 26). Siding and roofs varied in material and color, although four out of fifteen buildings had yellow siding. There were gable roofs of

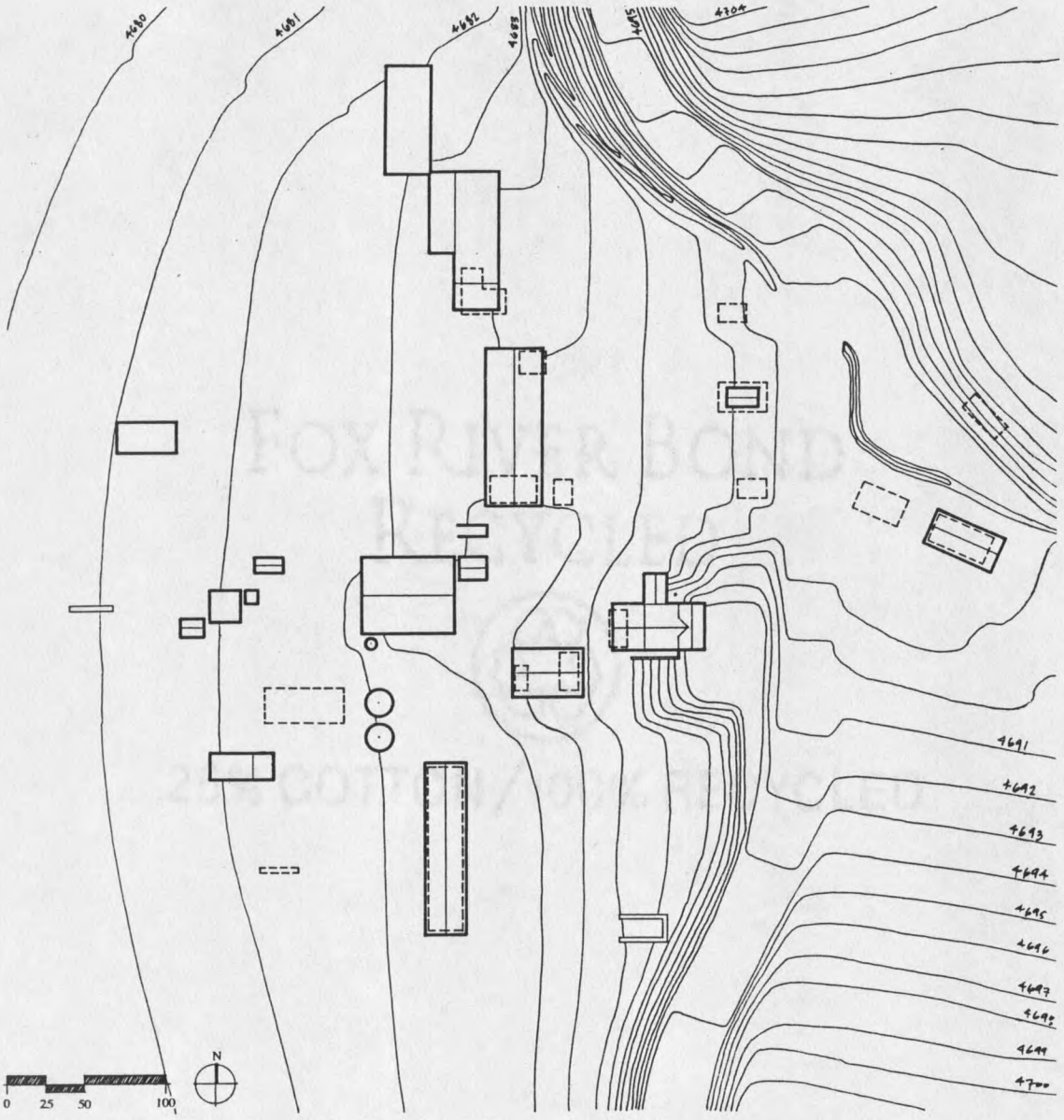


Figure 24. Site #1 - Topographical site plan illustrating the intermediate platform. (One foot interval between contour lines).

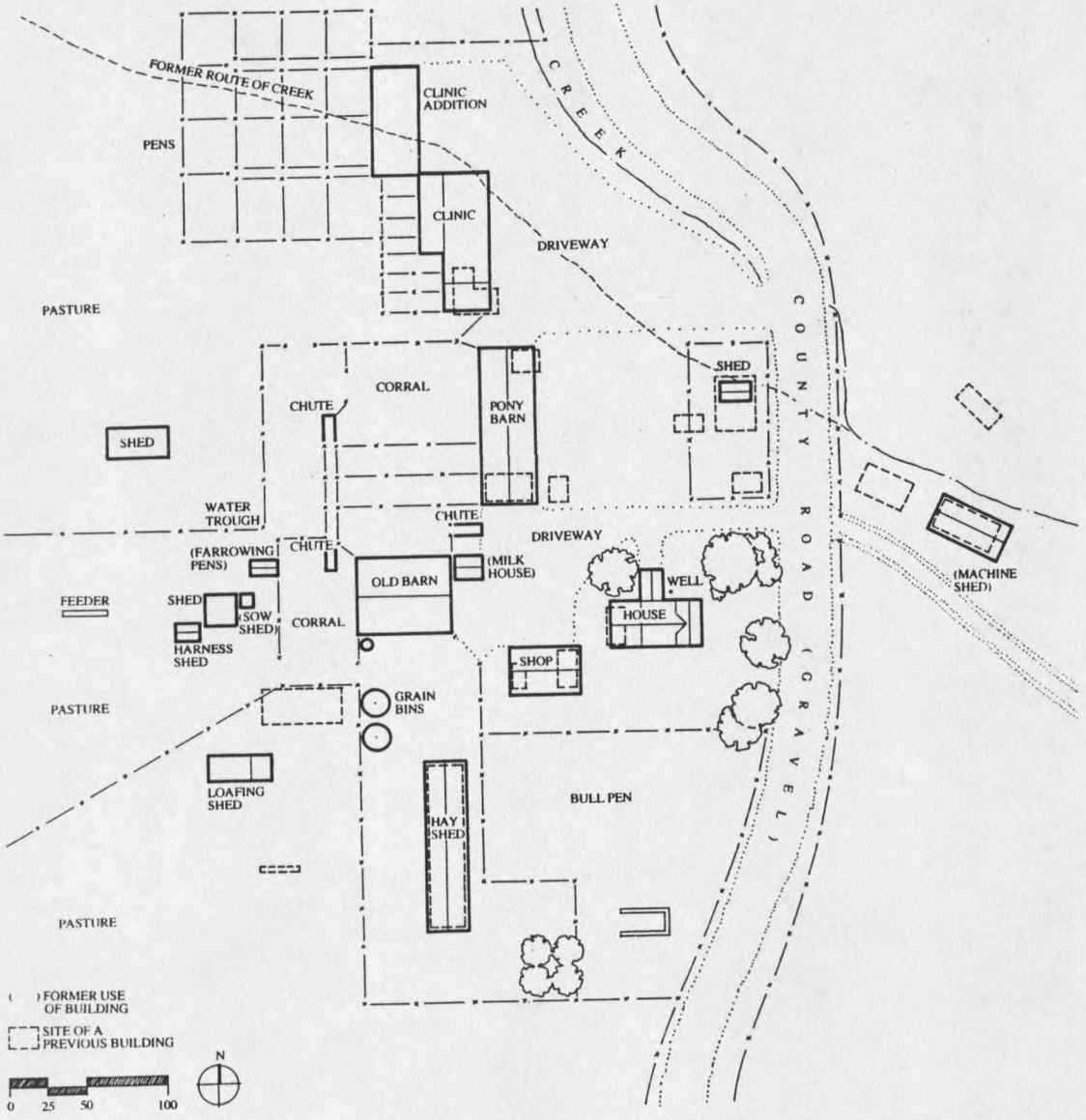
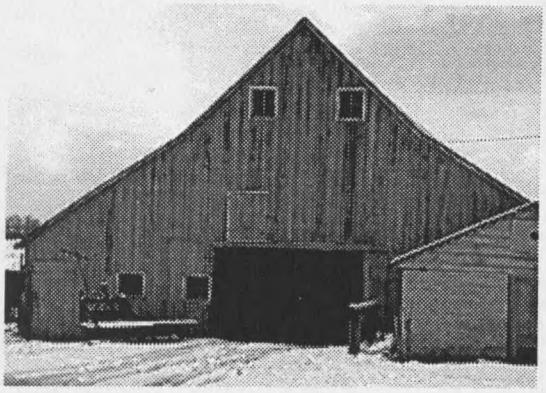
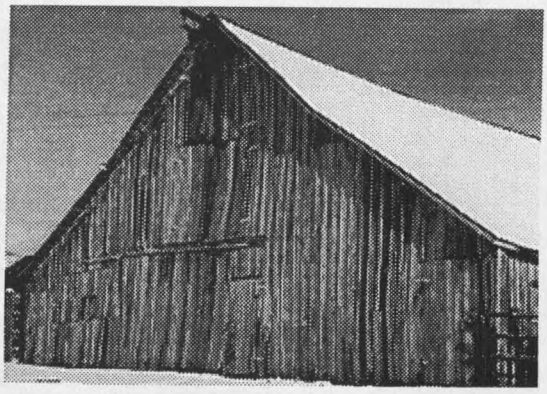


Figure 25. Site #1 - Existing site plan as a tight cluster of buildings of various scales.

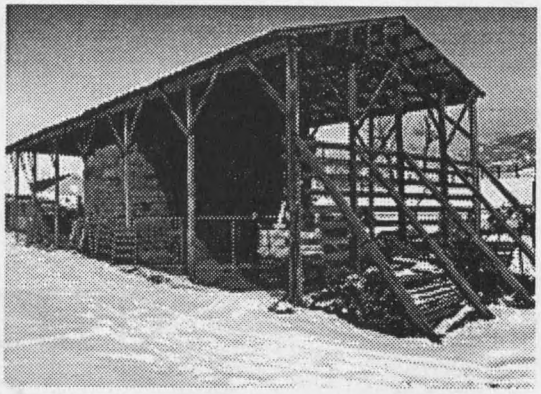


old barn and milk house (east)

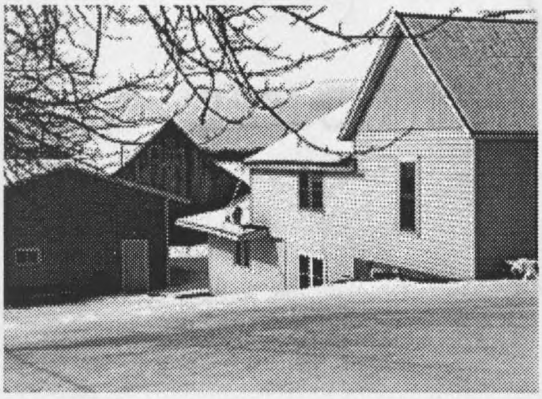


old barn with hay pulley (west)

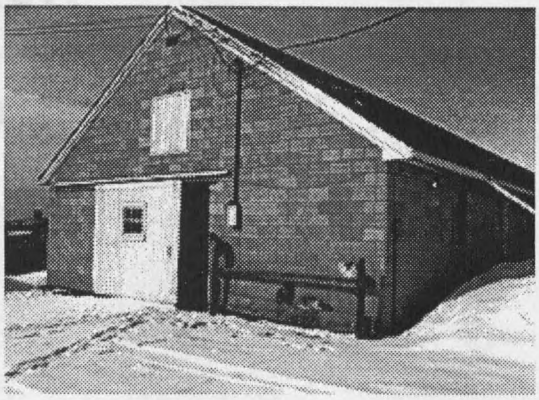
metal grain bins



hay shed



shop and house with multiple additions



cinder block pony barn

Figure 26. Site #1 - Varied character of existing buildings.

various pitch on all primary structures, the dwelling, and the shop. The brick building had the only flat roof, and a false front, while all tertiary structures had shed roofs. There were several large old trees on the east and north sides of the house. A group of four old apple trees were clustered south east of the hay shed.

A second house had been constructed on the land, as a family member who also grew up there wished to retire on the home place, and share in the stock raising. This house, with a new barn and corrals was built on the western edge of the land, and established its own distinct building site. This site was only two years old at the time of the interviews, and was not the focus of the study, although its presence there was significant to the study.

Participants

Three members of the family were interviewed: two brothers -- about fifty and sixty years old -- who both grew-up on the farmstead and were living and farming there at the time of the study, and their eighty eight year old mother who also grew up there, farmed there, and lived nearby in town at the time of the interview. According to the family, the two brothers were the fifth generation of the family to farm the place. One of the brothers had spent many years living in other parts of the country, but the other had lived on the farm for all but a few years of his life.

Historical Development

The sequence of development of the farmstead was reconstructed from homestead records (Control Document Index n.d.), from county records, from extant site evidence, and from interviews with two generations of the family.

The land was first settled by at least 1868, when the earliest survey party came through, and a house was documented on the first surveyor's map of the area, although its exact location is unclear. A homestead final certificate was issued in 1878. The claim of

about 160 acres consisted of river bottom lands fed by two smaller creeks, and low benches extending partially up the rear-round creek drainages. An early dwelling, about 20'x 33' with a stone foundation which could still be seen at the time of the study, was located about a quarter of a mile east of the building site under study. It was exquisitely sited on the edge of a protected south and west facing shelf within thirty feet of the creek. It was protected from west winds by an apple orchard of about twenty trees. Just to the north of it was a small log barn. The road from farmsteads further west passed on the north side of the barn, making the settlement well-connected with the main route into town. Another small log house of unknown date sat across the road from the present house, and was accompanied by a large shed. This log house may have been the dwelling of Wilson, the original homesteader of the land, whose patent was issued in 1878.

By 1890 the land was acquired by the family interviewed in the study. In that year a new house and a large barn, both of which were still in use at the time of the study, were constructed of light wood frame across the road from the earlier log house (figure 27). These buildings were organized to form a simple cluster with a log barn which may have already stood on the site -- or may have been moved to that location -- and together they surrounded a central work yard. These buildings were elegantly sited on an intermediate platform overlooking the pasture lands, between the two small creeks. During the same period of time 120 acres of neighboring homestead land to the east was acquired from a widow, almost doubling the size of the land holding, and vastly increasing the crop land. The bottom land pastures were used for grazing cattle, and later dairy cows, while the bench land was cropped. By being diversified in various hay and grain crops, beef as well as dairy, the farm was able to survive vicissitudes of the market.

By the first decade of the 1900s the main road into town shifted to run along the base of the bench land, parallel with the railroad, entirely bisecting the land from northwest to southeast. In 1913 the Chicago Milwaukee Railroad completed construction

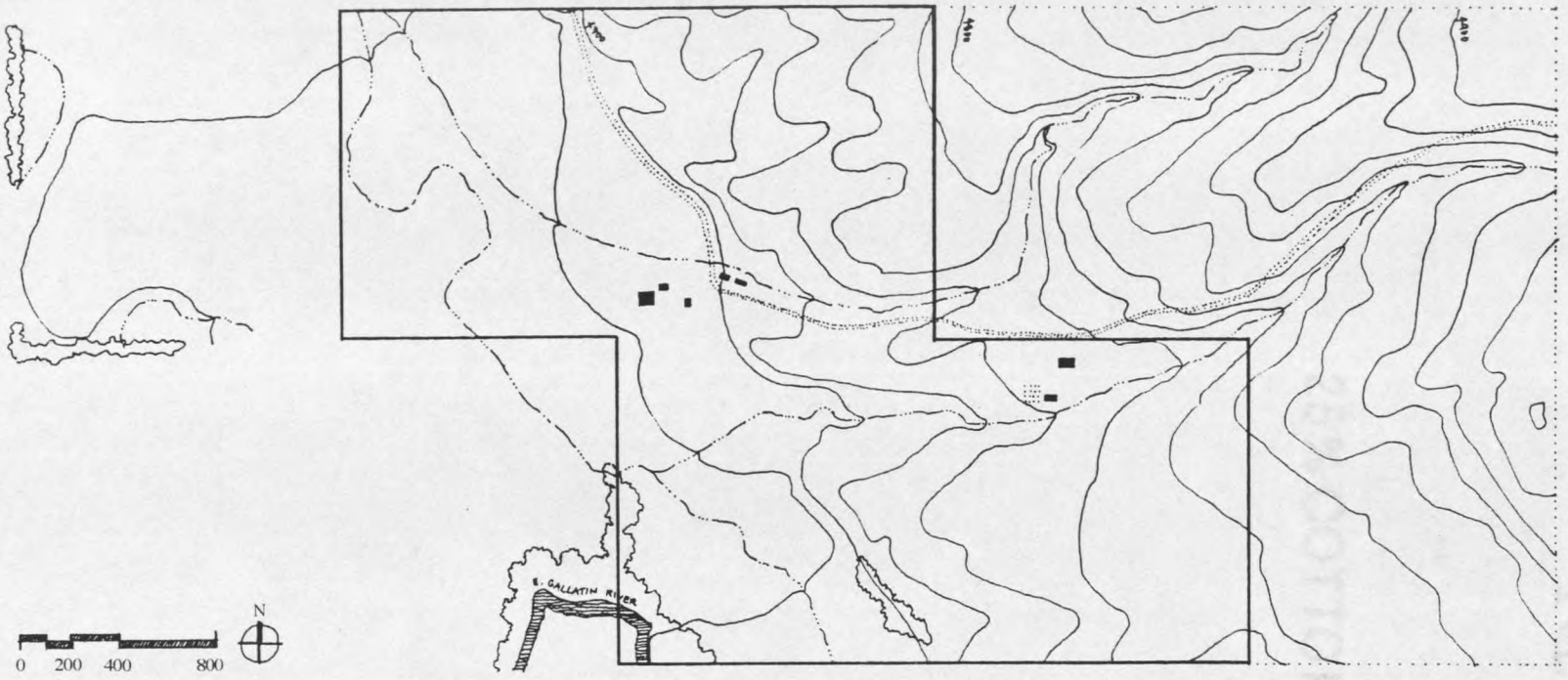


Figure 27. Site #1 - Land holdings in 1890 consisted of the 1878 homestead claim of 160 acres with Wilson's 1868 log house and shed (at the bend in the road.) An early dwelling with orchard and barn lies to the east, and the 1890 house and barn lies to the west. The 120 acre tract to the east was acquired shortly after 1890.

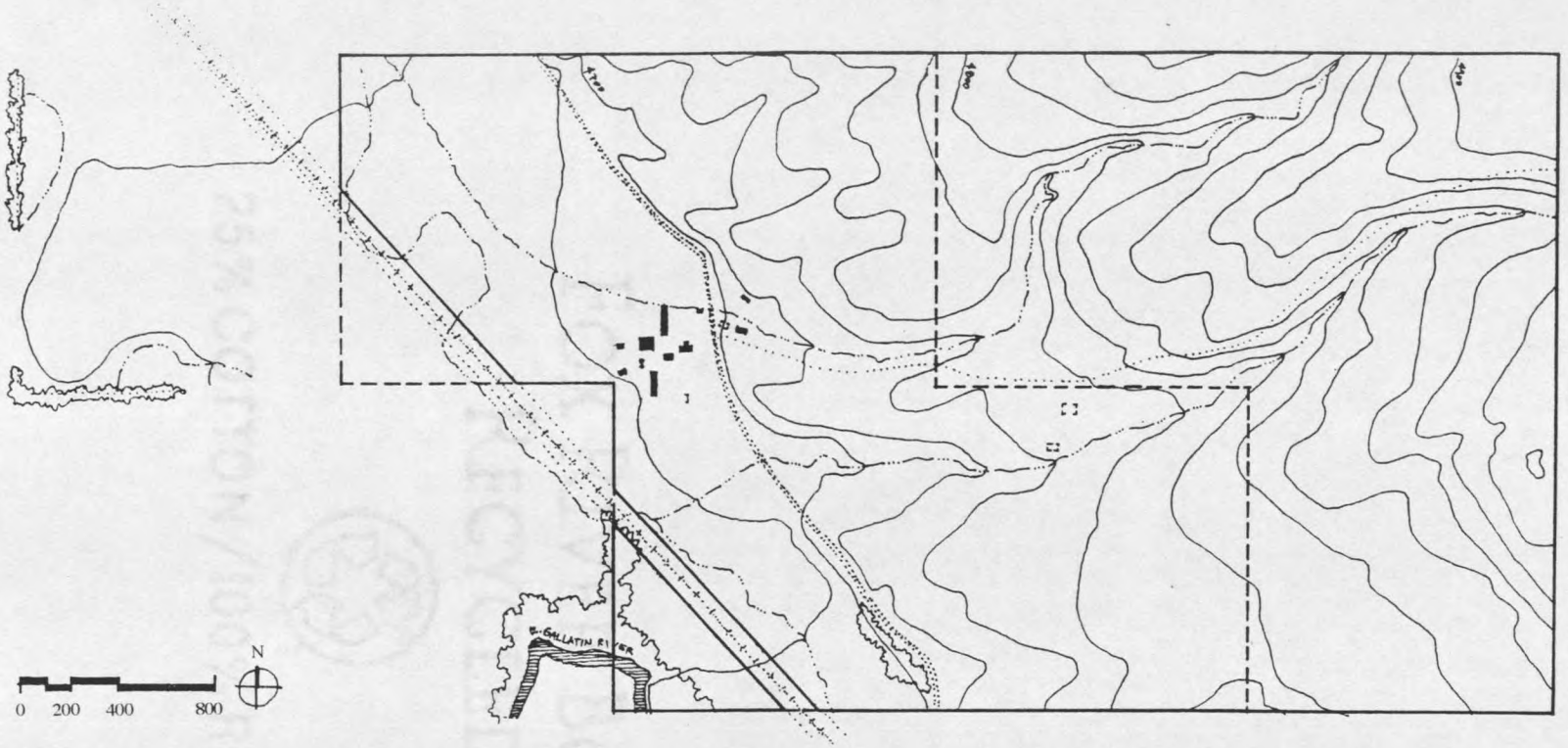


Figure 28. Site #1 - Land holdings in 1913 of about 280 acres. The south west edge of land was condemned by the Chicago Milwaukee Railroad's Turkey Red spur line in 1913. One of the remaining triangles of land was sold off. The county road was also built during this time, bisecting the land.

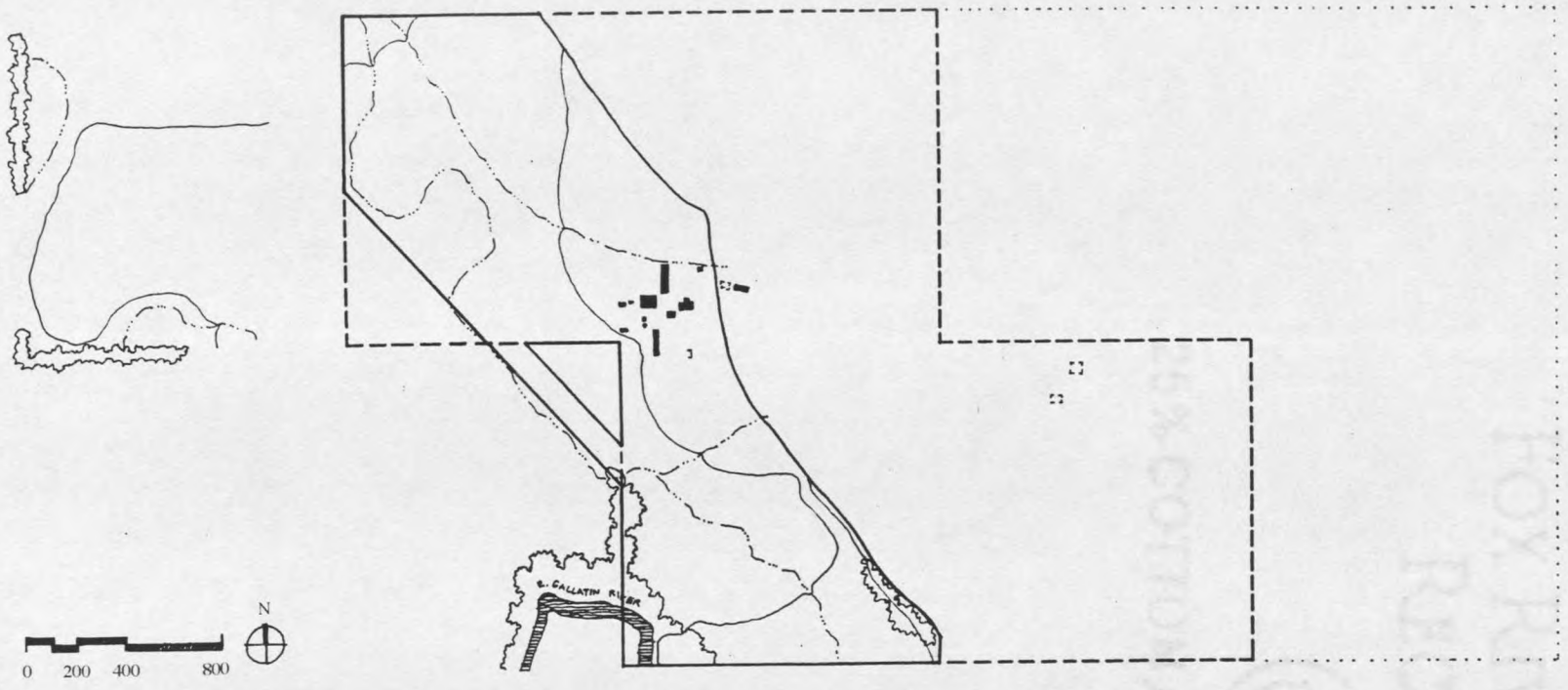


Figure 29. Site #1 - Land holdings in the 1960s. Railroad lands were bought in the '60s, leaving a triangle of a neighbor's land isolated. During this period the large acreage of grain fields in the foothills were sold.

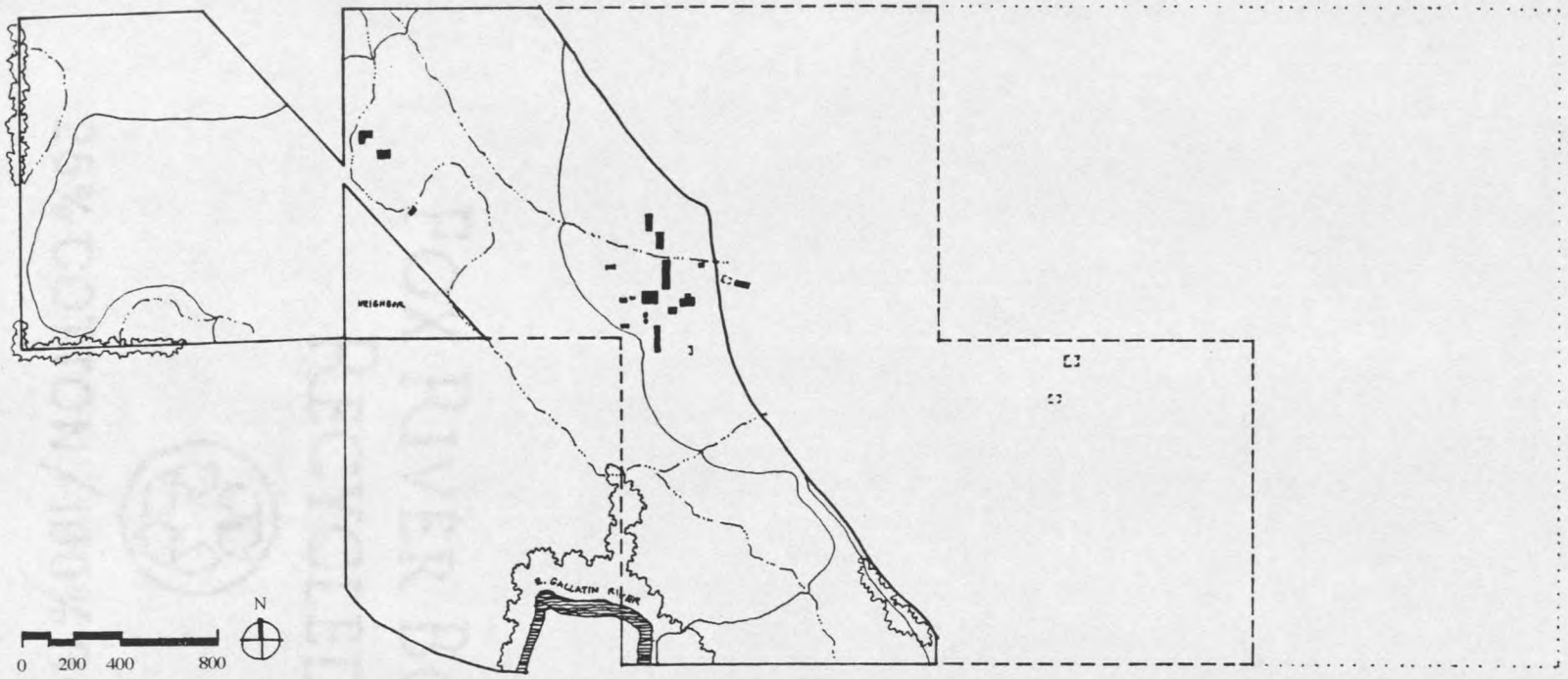


Figure 30. Site #1 - Land holdings in 1997. Two large pastures to the west were bought from the neighbor, as well as the isolated triangle of land (see figure 29), leaving another triangle of neighbor's land surrounded.

of the Turkey Red Spur line from Bozeman to service grain producers in Springhill and Maudlow to the northwest. Construction required the acquisition of private lands, which were condemned. The farm site under study was directly in the path of this route (figure 28). The railroad cut a diagonal swath through the south west edge of the land, causing two triangles of land to become cut-off and difficult to access for grazing or farming. They had less value to the family in this organization, and one of these lots was sold off as a result. After the railroad closed, and the tracks were removed, railroad land came up for sale at public auction. The family was able to buy their land back, and they also bought an adjacent stretch of the railroad land, isolating a triangle of the neighbor's land within their own (figure 29).

As the city of Bozeman continued to grow, lands on the outskirts increased in value. At a point when one generation of the family was ready to retire, and the next was still in college, the entire eastern bench land was sold off (figure 29). The senior family member, who had struggled with farming during the depression, felt that the land could never be farmed profitably compared to the sum the buyer was offering. Later the following generation, who planned to continue farming, made unsuccessful attempts to buy part of it back. During the twenty years prior to the study, however, the family had acquired some neighboring pasture and hay ground to the west which kept their farming viable with intensive and seasonally rotating uses (figure 30). They raised various stock, and farmed enough grass hay and alfalfa to support their own livestock.

Evolution of the Building Site

By reconstructing the farm building site in phases of its development, an incremental pattern of growth became apparent (figures 31-34), which remained centered on the early cluster established in 1890. Many buildings were built, re-built, burned down, or torn down in the process of time and adaptation to changing needs. Secondary

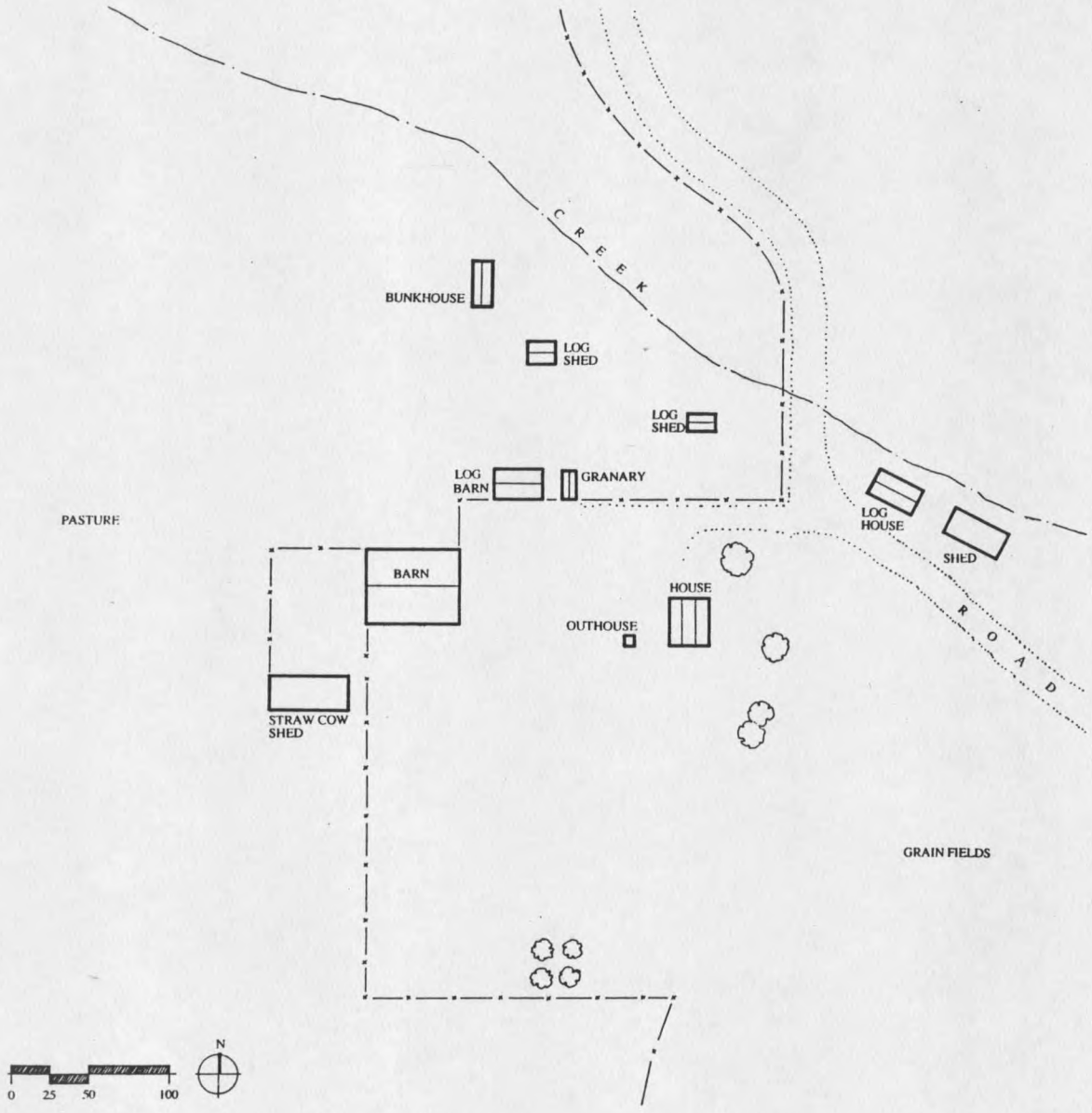


Figure 31. Site #1 - Site plan from 1890 to 1915. During this period seven new buildings were constructed. House and cow barn were constructed in 1890, other buildings pre-date 1890. The log house may have been Wilson's house from 1868, but it burned in 1899.

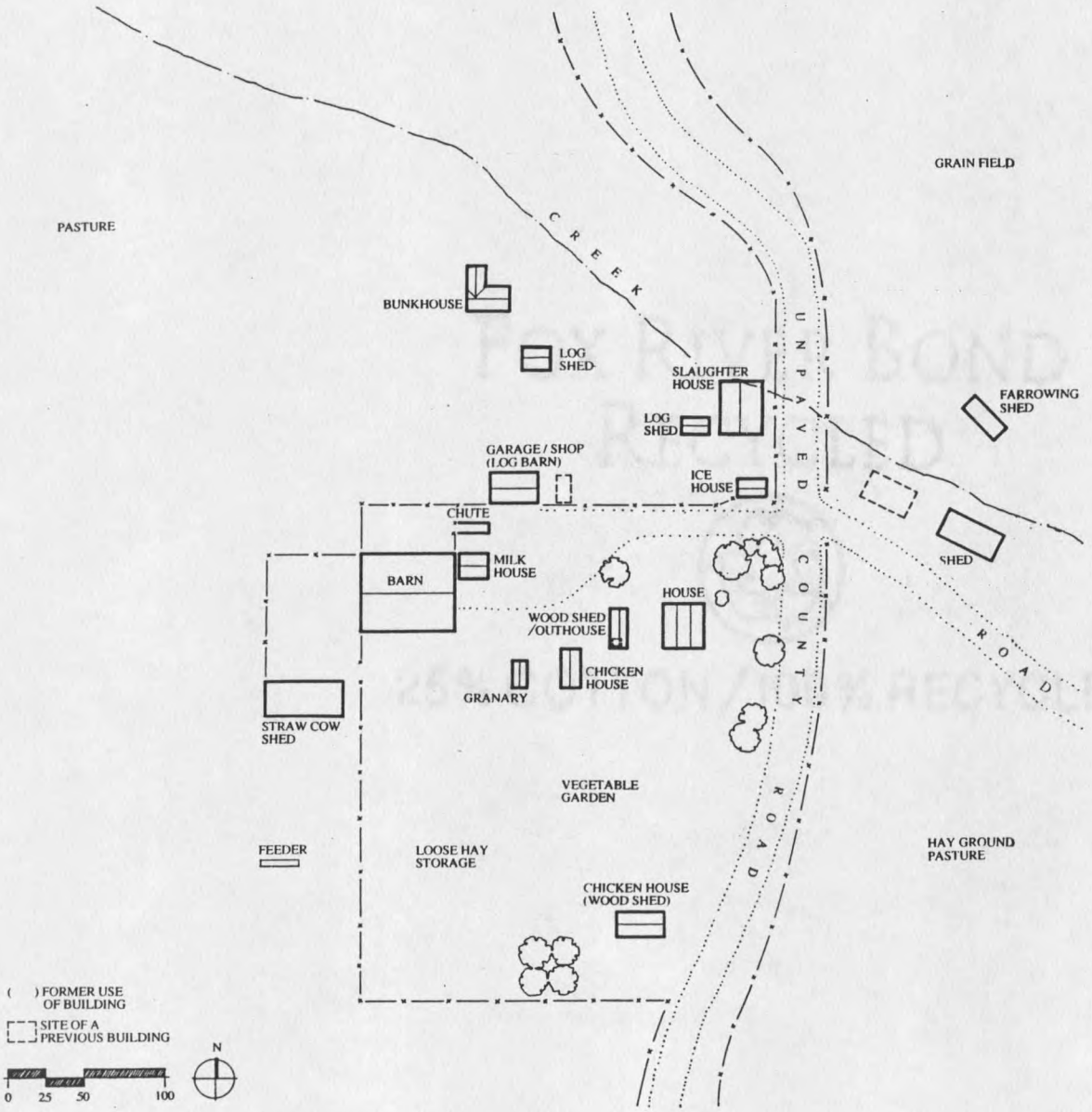


Figure 32. Site #1 - Site plan from 1916 to 1930. Five new structures were built, two were moved, and one was demolished.

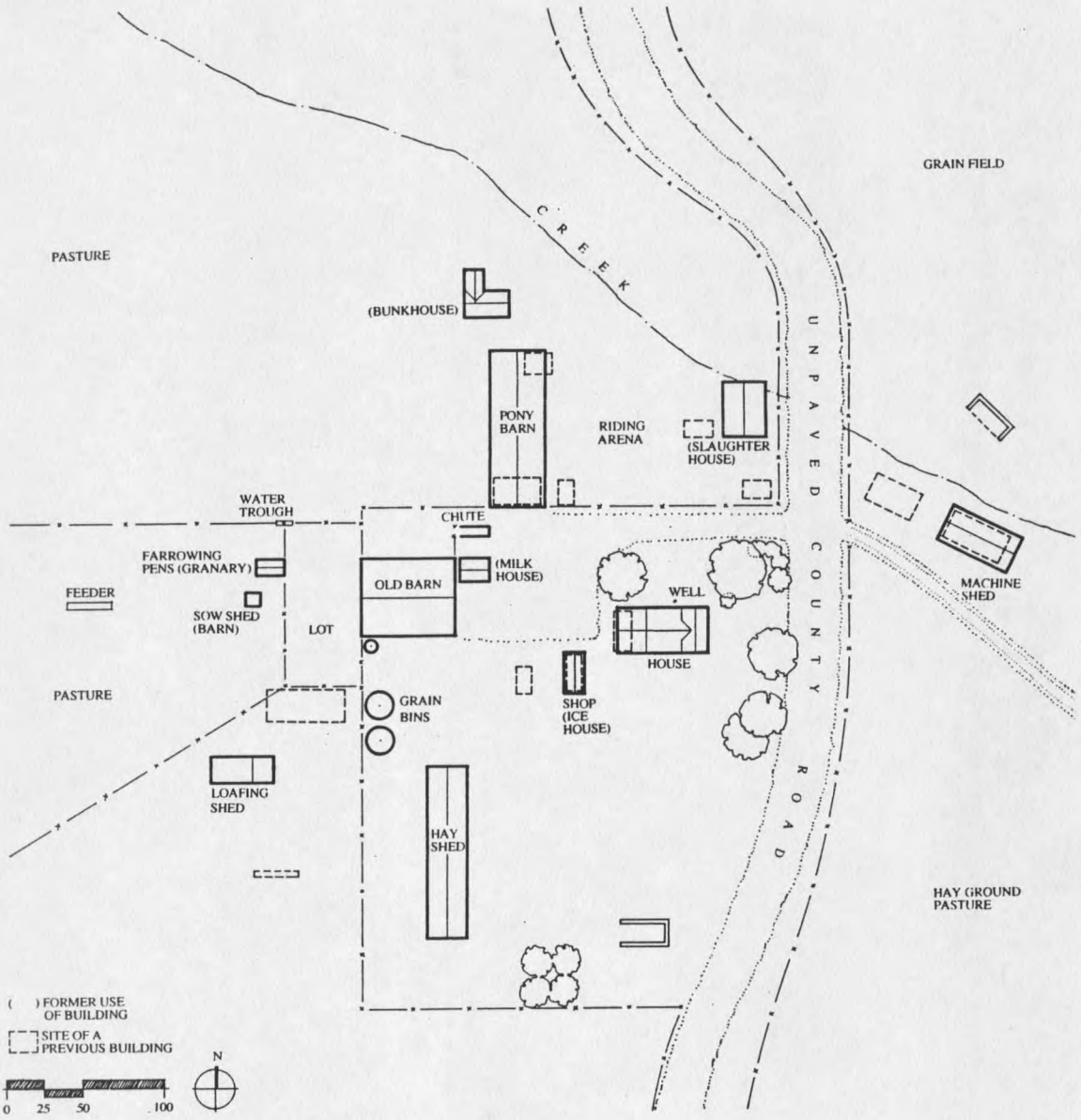


Figure 33. Site #1 - Site plan from 1931 to 1975. Six new structures were built, while seven were demolished, two were moved, and the house was added on to seven times.

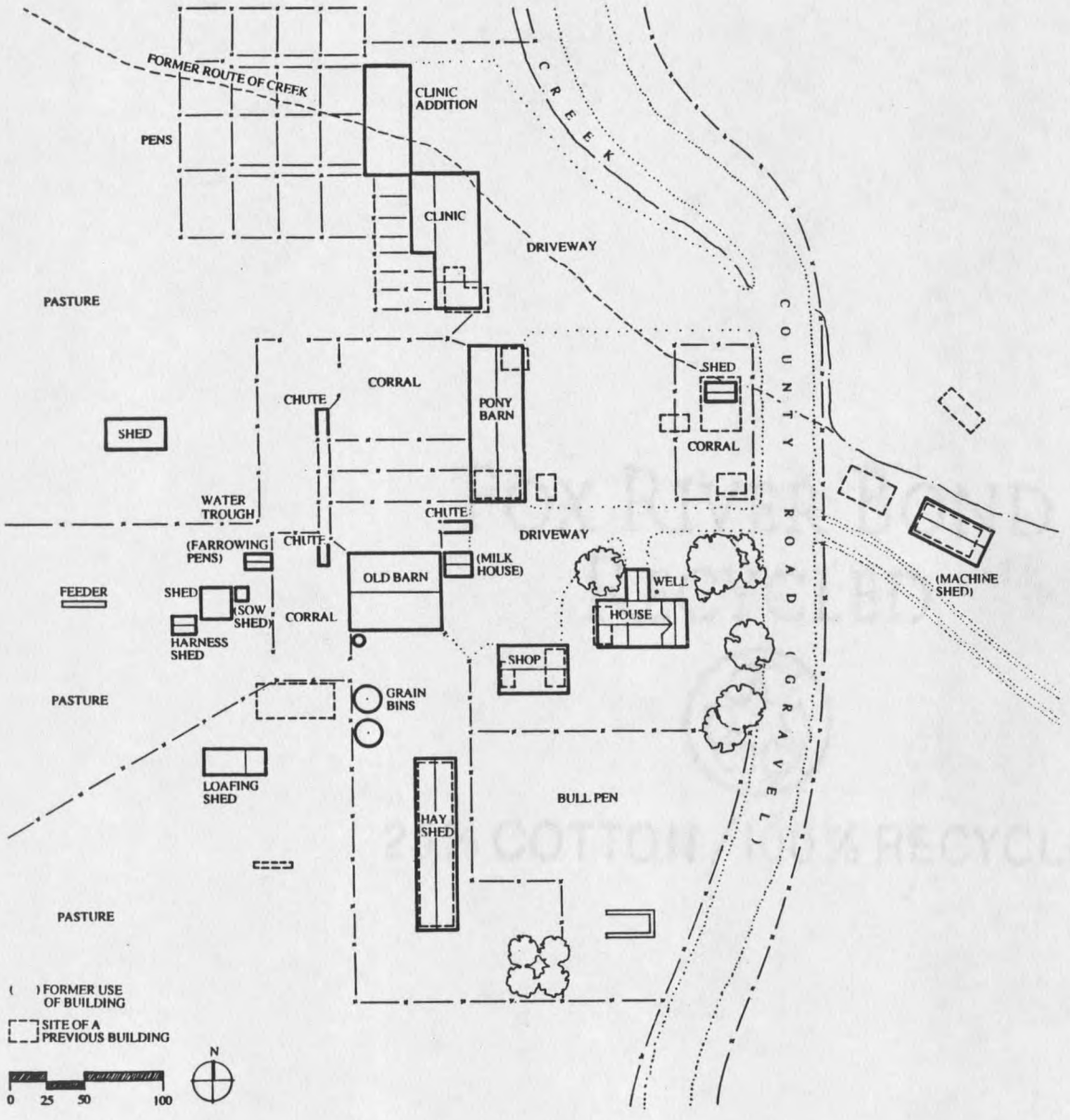


Figure 34. Site #1 - Site plan from 1976 to 1997. Seven new buildings were built, four were demolished, and two were moved -- including the large brick clinic which was moved onto the site.

and tertiary buildings were moved around on the site, or they were moved off or onto the farm by hitching them to teams and sliding them on the snow. Many building functions changed fluidly over time, and often several times as stock or machinery requirements changed. The house was added onto seven times, and a large brick building was hauled by truck onto the site from downtown.

Before 1890 there were three or four buildings on the site which were secondary and tertiary in scale. In 1890 a new barn (primary in scale) and house (secondary in scale) were built. In the following 107 years about 25 buildings were added, about 13 were destroyed, the house was extensively added on to, and at least 10 buildings changed function. The breakdown of this evolution is illustrated in the following table:

Table 4. Site #1. Sequence of construction and demolition of buildings divided into primary (P), secondary (S), and tertiary (T) scales.

	Before 1890			**1890-1915**			**1916-1930**			**1931-1975**			**1976-1997**		
	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T
New		3	1	1	4	2		5		3	3		3	4	
Demolished					1			1			4	3	1	3	
Moved									2			2	1		1
Addition								1			7			2	
Changed function								1		1	2	3	2		1

Conclusion

The shape and size of land holdings changed considerably over time according to changing perceptions. The building structures, however were considered entirely flexible and mutable. They were adaptable spaces that shifted rapidly to accommodate the changing nature of work that took place on the land. The palimpsest of the building site became gradually more complex as the evidence of former uses was traced over by more recent ones. The layered result revealed the necessity of the farm to evolve with changing markets in order to survive. While individual buildings had a fluid character in the long-term, their placement was unconsciously anchored by the prime choices in the siting of

two or three early buildings. The wisdom of this established pattern was observed and respected throughout the history of the site.

Case Study: Site #2

General Character

The 1,400 acre ranch was located on the East Gallatin River, all on a broad, sub-irrigated bottom land. About five percent of the land was subject to flooding on a typical year. The land was bordered by the East Gallatin River to the north, a drain ditch to the west, and at the south and east only fence lines defined the edges. Two large creeks ran year round through the land, meandering in large loops between cropland, and flowing into the East Gallatin. The flatness of the land was illustrated by the meandering quality of the river and creeks, which had tended to shift and change positions over the years, leaving boggy sloughs in some pastures. The overall uses were about half cattle grazing and half planted in hay and grain. Narrow corridors throughout were set aside as riparian recovery zones, and these areas had an overlapping use for public hunting, fishing, and wildlife viewing. In some years some of the crop land was irrigated.

The family had a long tradition of working with the Agricultural Extension Service on progressive grazing management practices. Grazing cattle were rotated to fresh pasture every three days. There were protected riparian corridors throughout the ranch which were monitored for vegetation and wildlife. Stream crossings were limited and managed for erosion. Because of its lowland location on the East Gallatin, there were swampy areas. One boggy pasture to the west was adapted for crop land by putting in a drain ditch along its length.

The building site lay toward the south edge of the land, immediately adjacent to a major north-south paved road, which separated about a quarter of the land off to the east. The nearest neighboring house was a mile north, and this farmstead had also been

acquired by the family for their own use. The ranch road extended into the ranch, between the river and a large creek, for well over a mile. There were a few isolated areas of Cottonwood trees in the pastures, but otherwise only dense, low brush grew at the creeks.

Buildings

The site of the buildings was immediately adjacent to a meandering creeks, and was a slightly raised isolated platform (figure 35). It lay between the creek to the west, the paved county road to the east, and the unpaved ranch road to the south. The buildings were all parallel and perpendicular to each other, and to the roads, in a moderately tight cluster. A few later structures were outlying further to the west. Wooden corrals, pens, and chutes occupied the west -- and more boggy -- side of the building site, and a few more were attached to the outlying horse barn to the west. There were additional working corrals, pens, and chutes about a mile to the north west of the building site, on the unpaved ranch road. The openings of most buildings were to the north or south, except the houses and garage, which were oriented east toward the paved road. Willow trees were planted very early around the two houses, and had become very large.

There were fifteen buildings on the site (figure 36), about 27% of these structures were primary in scale, including the old barn, large calving shed, horse barn, and machine shop. About 60% were secondary, including the two houses, garage, a very large chicken house, and a cluster of large metal grain bins. The remaining 13% of the buildings were tertiary in massing and included a gas tank shed, and an old outhouse. Construction of buildings was mostly light wood frame, with a couple of post and beam structures, a prefabricated metal truss structure, and the corrugated sheet metal grain bins (figure 37). The siding treatment was various, including horizontal wood, board and batten, and

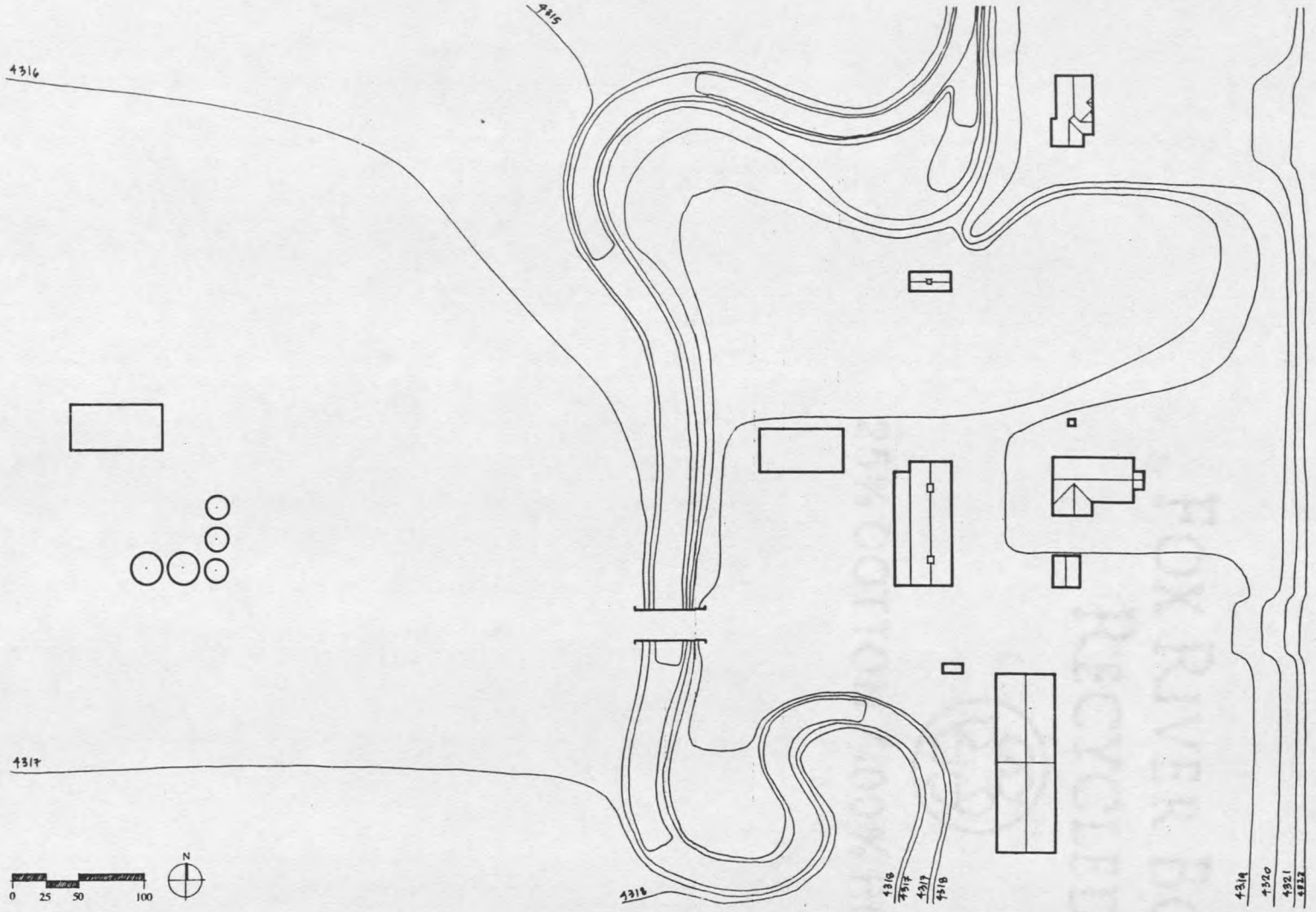


Figure 35. Site #2 - Topographical site plan illustrating the slightly raised, somewhat isolated platform on which the majority of the buildings stand, and the deep cut of the meandering creek adjacent to the site. (One foot interval between contour lines).

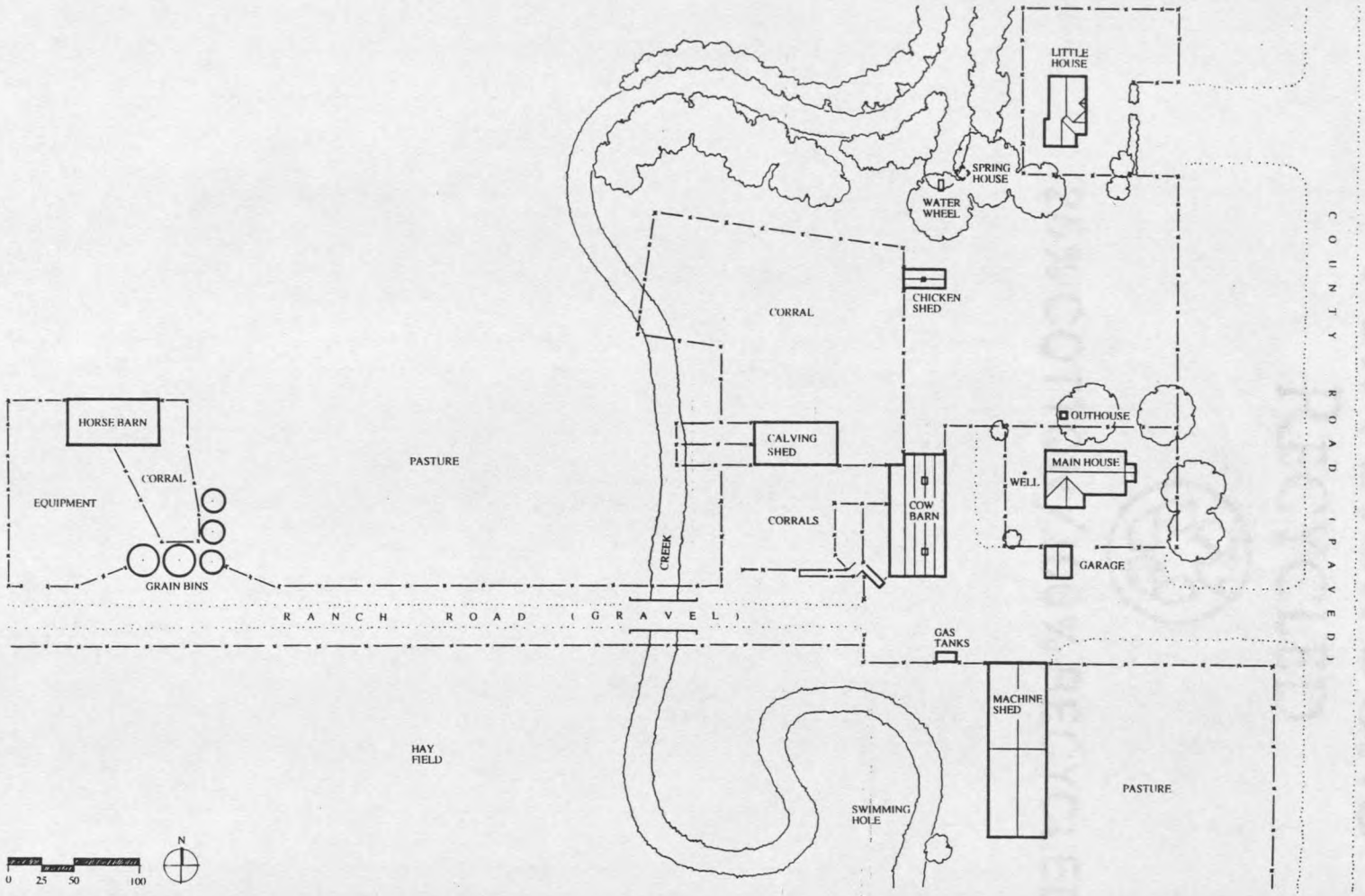
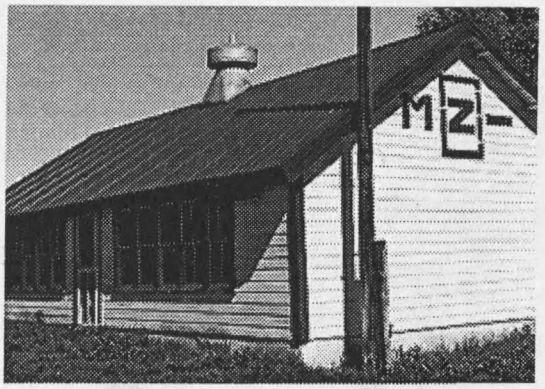


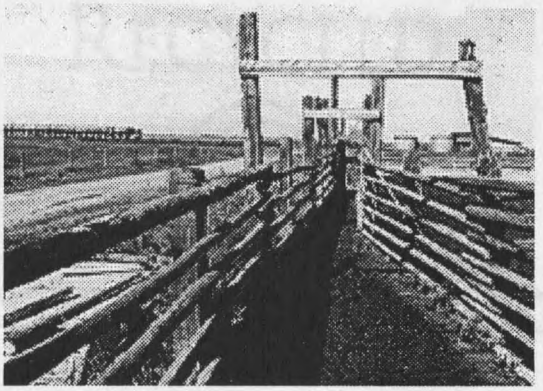
Figure 36. Site #2 - Existing site plan as a moderately tight cluster of buildings at various scales.

cow barn

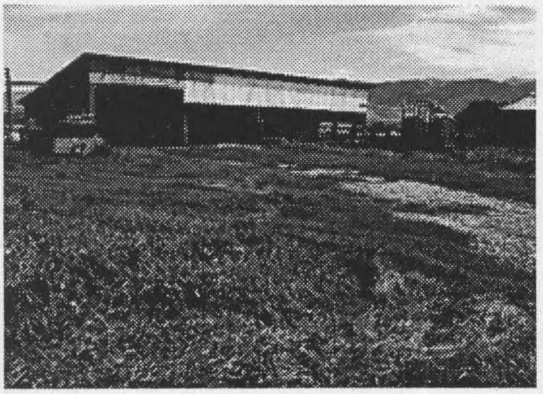


chicken shed

working corrals and cow barn



working and loading chute



horse barn

cow barn and house

Figure 37. Site #2 - Character of existing buildings.

corrugated sheet metal. The colors were various, except that most outbuildings were white, while the houses were yellow. Most of the roofs were red, although the materials varied.

A neighboring ranch with a house and outbuildings had been acquired by the family about a mile north of the farm site, also on the paved road. While the acquisition and use of this building site was significant to the study of development of the place, it was not the focus of the study.

Participants

Three family members were interviewed. The rancher -- third generation on the site -- who ran the ranch at the time of the study and was raised there, lived in the recently acquired neighboring house to the north. Both of his parents, about seventy-five years old, were interviewed. They lived at the farmstead site and worked the ranch all of their married life, and retired into town -- six miles away -- a few years before the study. The father also grew up on the ranch from age fourteen when his parents bought it. He lived on the ranch for a total of about fifty-five years.

Historical Development

The main ranch, originally known as the Conrow Ranch, was owned by another old Bozeman family when the present family bought it in 1936. Their ranch on the Musselshell River was slated for inundation by the Fort Peck Reservoir, and they were removed by the federal government. They purchased the ranch with a total of 800 acres as a draft horse breeding farm, but shifted to cattle and dairy. The dairy operated until 1966, when the ranch shifted entirely to beef production. An additional 160 acres was acquired in 1958. The ranch road was formerly a right of way to a neighboring operation to the north, but that 340 acre ranch was acquired in the 1970s, giving the family control of access. Acquisition of acreage allowed them to increase cattle numbers, which kept the

operation viable. The family also acquired extensive summer range about thirty miles away. The expansion of cattle numbers has intensified winter uses of the home ranch.

Evolution of the Building Site

From information given during the interviews, the building site was reconstructed in intervals beginning in 1890 (figures 38-42). By 1890 two primary buildings existed, and one dwelling structure. It is probable that more early buildings existed, but less is known about the site because the family did not acquire it until 1936. Overall at least eighteen new structures were built during the 107 year period following 1890. At least six were demolished or burned. The small dwelling structures were extensively added on to.

Table 5. Site #2. Sequence of construction and demolition of buildings divided into primary (P), secondary (S), and tertiary (T) scales.

	1890-1915			1916-1930			1931-1955			1956-1975			1976-1997		
	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T
New	2	1				4		5		3	5	1			
Demolished								1	1	1	1	2			
Moved												1			
Addition				1							4		1		
Changed function										1		1			

Conclusion

Although less was known about the early history of this farmstead, it is clear that a surge of growth in both the land holdings and the building site took place between 1956 and 1975. The lack of deteriorating buildings on the site may have been due, in part, to a scarcity of space on the high ground, so that un-utilized buildings have been removed.

Case Study: Site #3

General Character

The ranch was 320 acres, about one and a half miles from the Gallatin River on a major creek drainage. It was regular in shape except for the northeast edge, which was cut

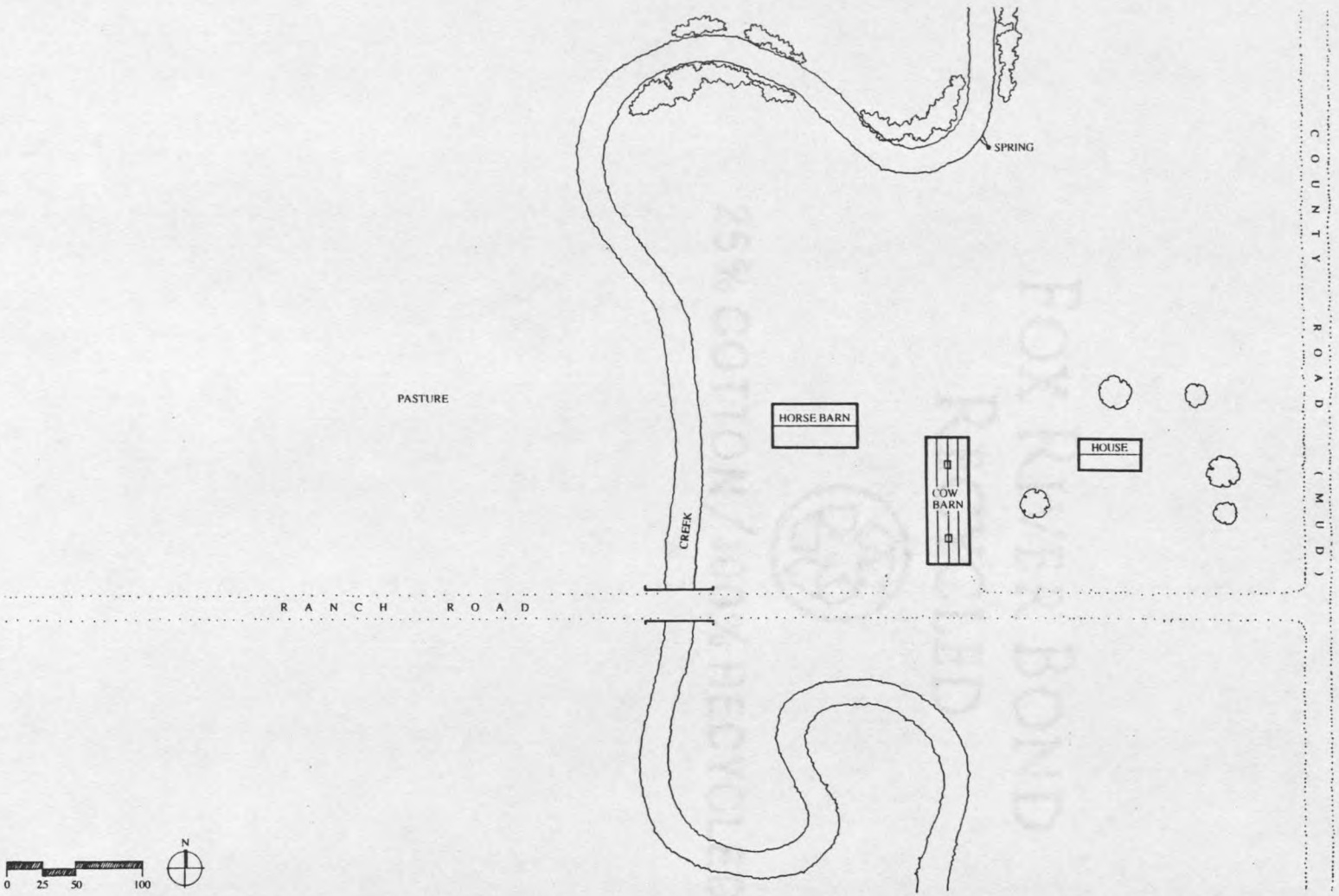


Figure 38. Site #2 - Site plan from 1890 to 1915. Shown are structures which are known to have existed during this period. Others probably existed, but were quickly demolished when no longer used, due to lack of space on the isolated platform of ground.

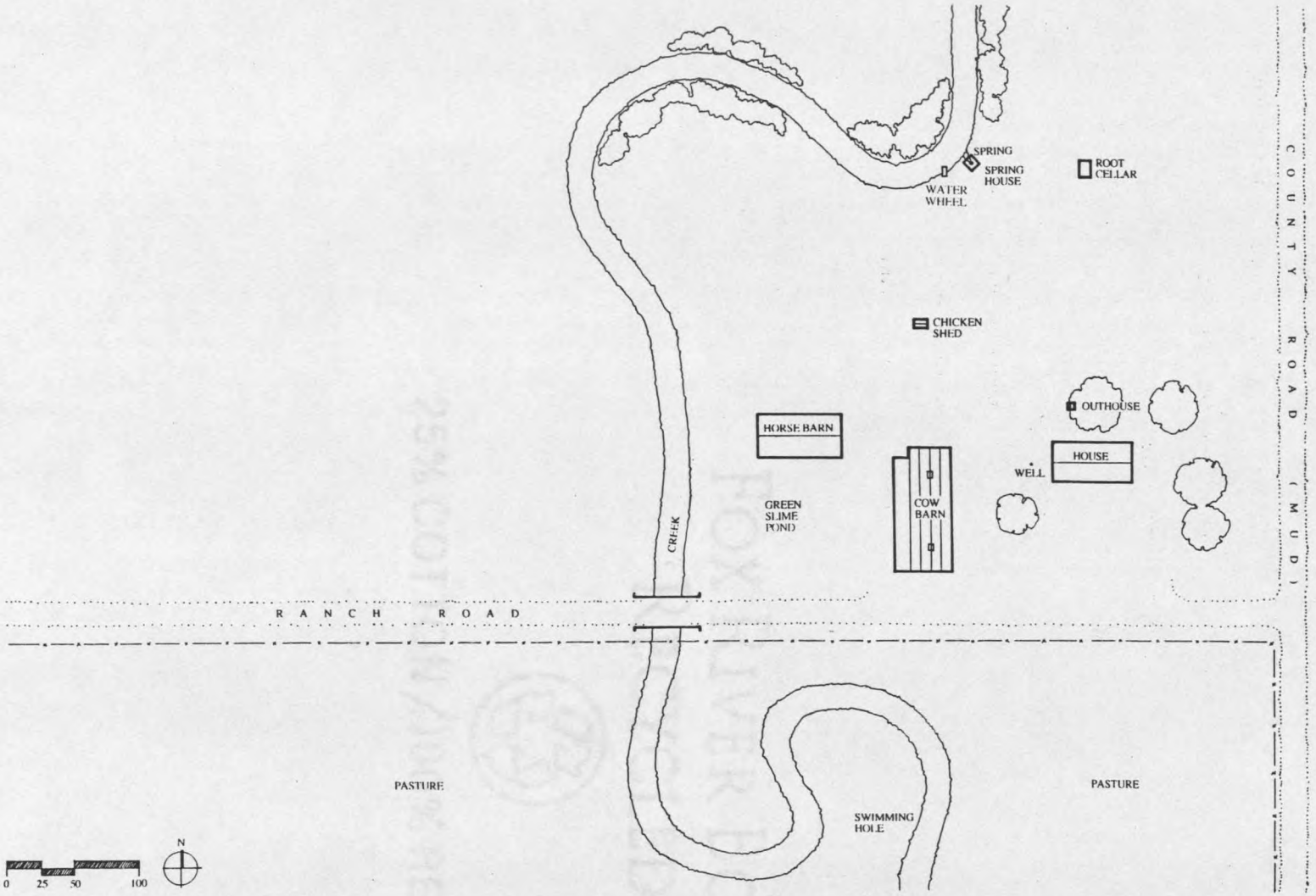


Figure 39. Site #2 - Site plan from 1916 to 1930. Four new domestic and agricultural outbuildings of tertiary scale were constructed, and the cow barn was expanded.

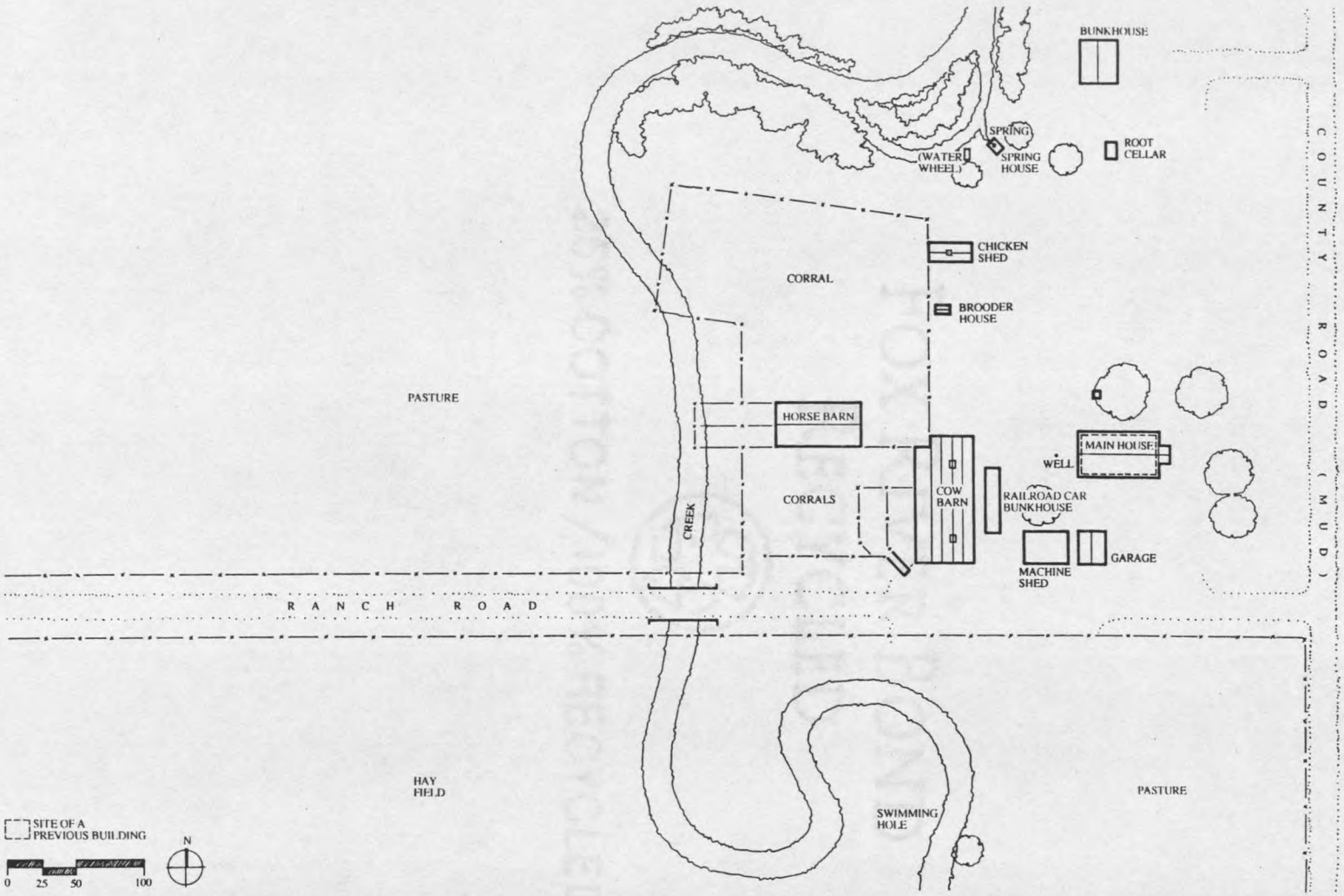


Figure 40. Site #2 - Site plan from 1931 to 1955. A new house was built on the site of the previous one after it burned down, and a bunkhouse was built, in addition to other new outbuildings. In all five new structures were built, one was moved onto the site, another was moved off.

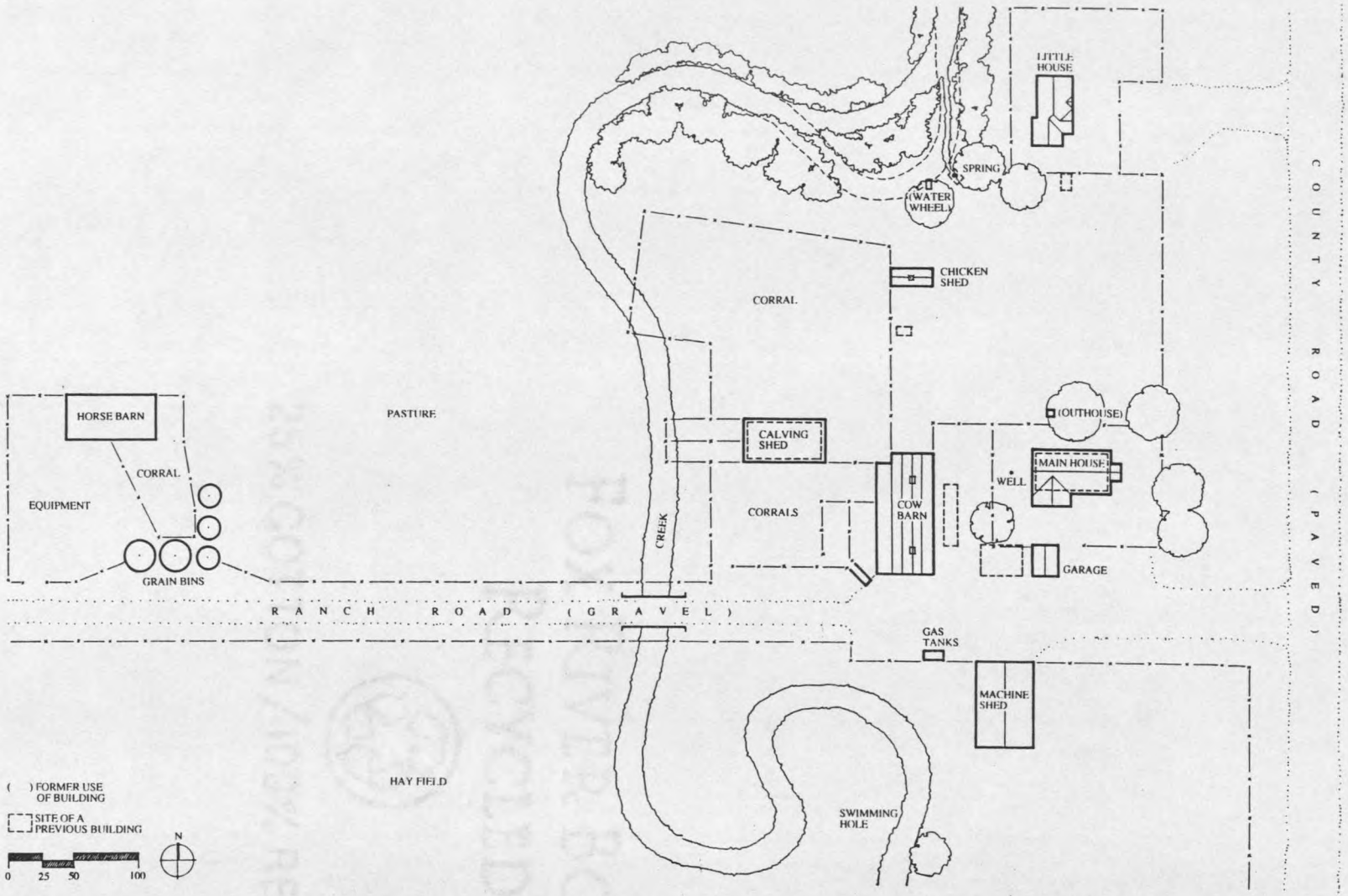


Figure 41. Site #2 - Site plan from 1956 to 1975. The old horse barn was demolished and replaced with an open-faced calving shed during this period. Including each of the metal grain bins, nine new structures were added. The houses were both expanded.

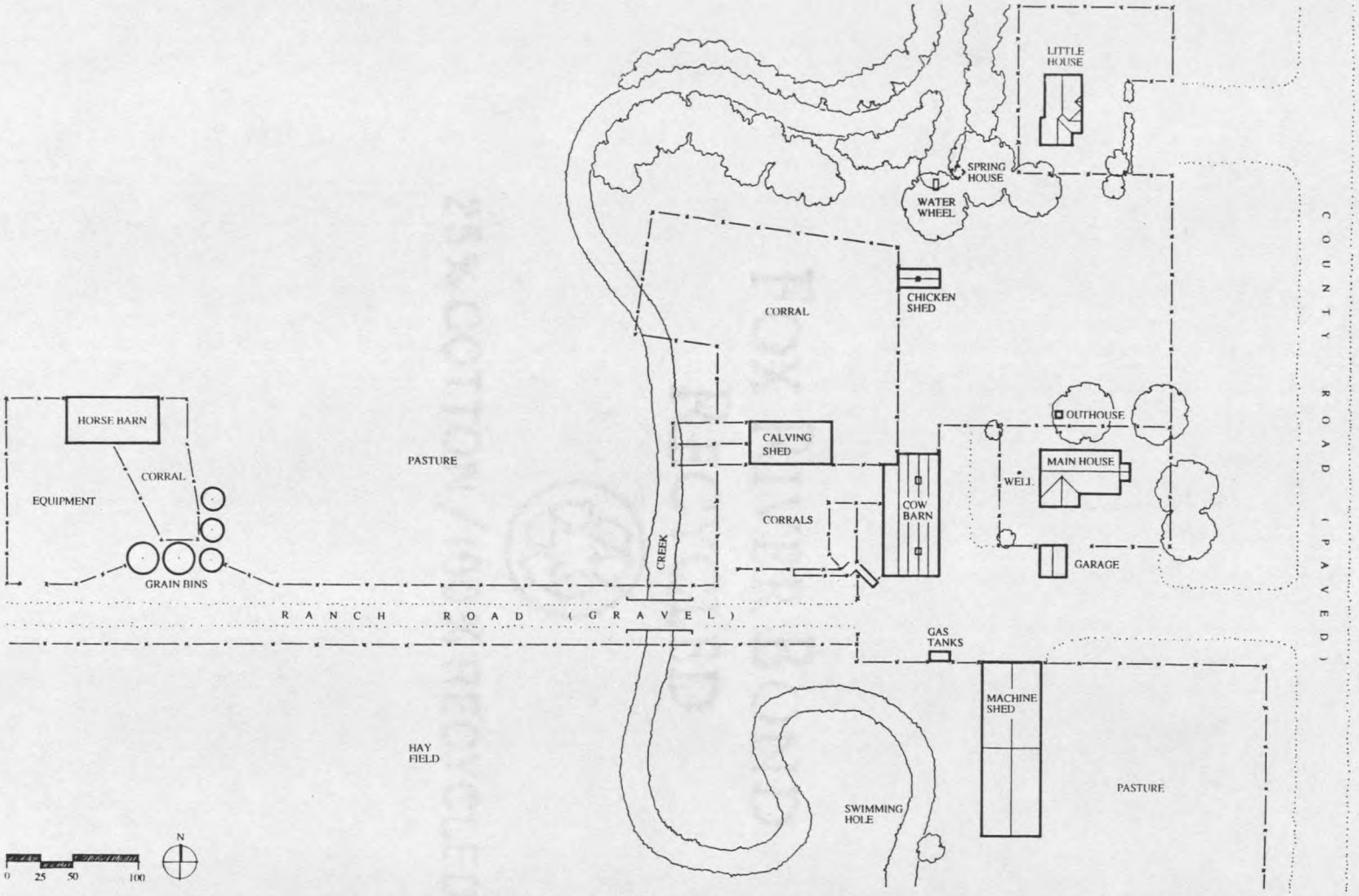


Figure 42. Site #2 - Site plan from 1976 to 1997. A major addition to the machine shed was the only building project that took place during this period.

diagonally where it followed an old railroad grade. The edges were otherwise defined only by section lines which had become county roads -- one paved, the other gravel -- and by a fence line. The land sloped down evenly toward the northeast. There were two year-round creeks which flowed across the ranch, from southwest to northeast, and at least two irrigation ditches which did likewise. There were also numerous dry ditches which cut across in a similar direction, the history of which is not known. All creeks, irrigation ditches, and dry ditches were lined intermittently with large Cottonwood trees, forming a series of rows. The east half of the land was sub-irrigated, and was cropped with alfalfa, hay, and grain. The west half was drier with rocky soil described as river bottom, and was used largely for cattle grazing, but was also irrigated using ditches. The place was predominantly a sheep operation, with some cattle. Its viability depended on summer and winter grazing elsewhere for the sheep herd, and summer grazing for the cattle.

The building site was located on the north edge of the drier land adjacent to the gravel county road. It was intersected by a dry ditch and a deep swale -- which may have been a broad ditch at one time -- both of which were lined with Cottonwood trees. The site appeared to drain well as a result of rocky ground, and possibly because of the swale.

Buildings

The buildings were arranged in a relatively loose cluster, with a distinctly linear character, parallel with the gravel road. The land on which the buildings sat was not distinctly higher than its surroundings, and was best described as part of a gradual platform. The swale adjacent to the house and machine shed, however, suggested it was well drained (figure 43).

Of the twenty two structures on the site (figure 44), 18% were primary in scale, including the sheep sheds, lambing wall tent, and machine shed. About 33% were secondary in scale, including the house, log granary, metal grain bins, and trailer house.

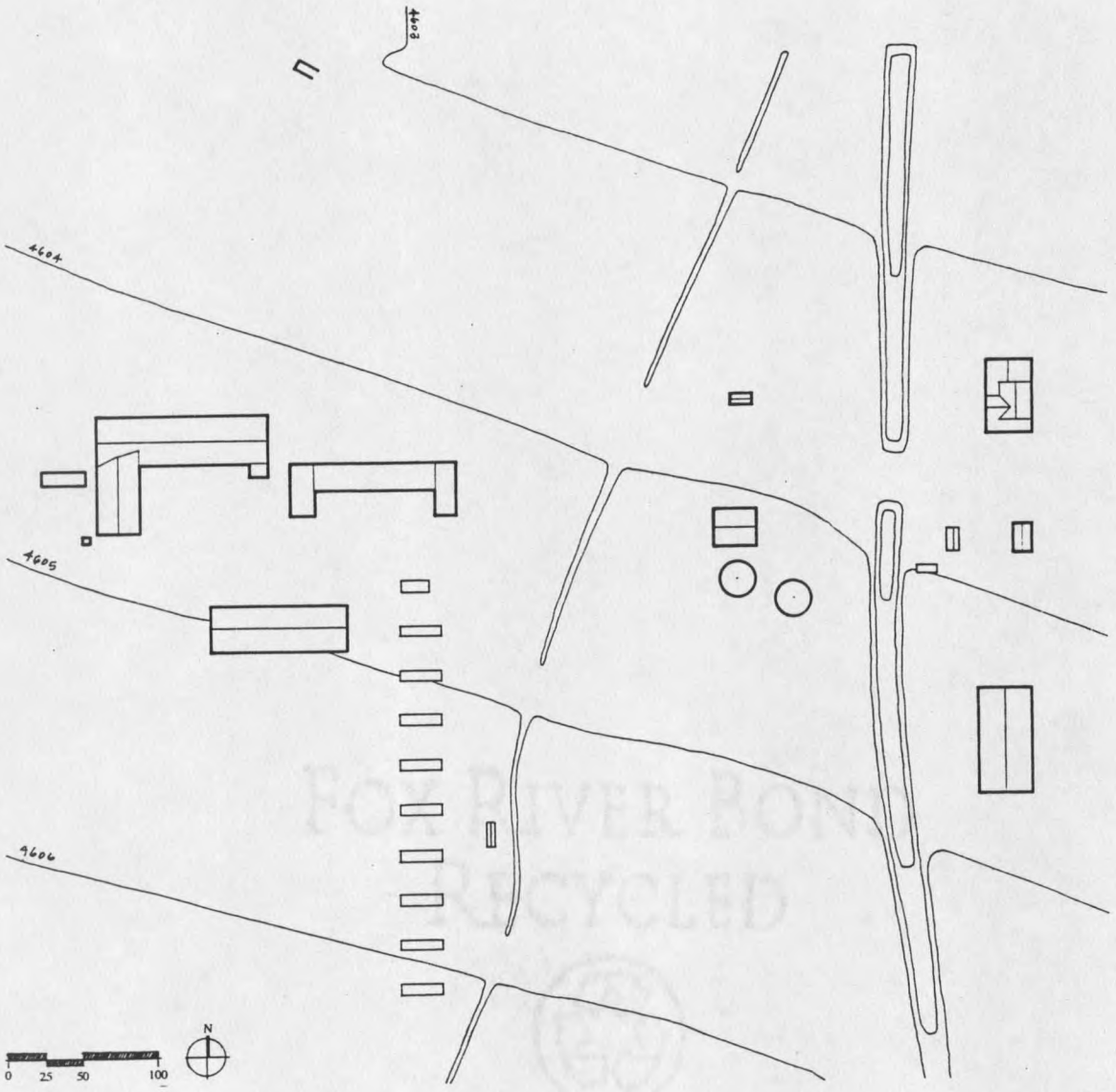


Figure 43. Site #3 - Topographical site plan. Linear building organization across the gradual platform of land, with disused ditch and wider swale cutting through the site.

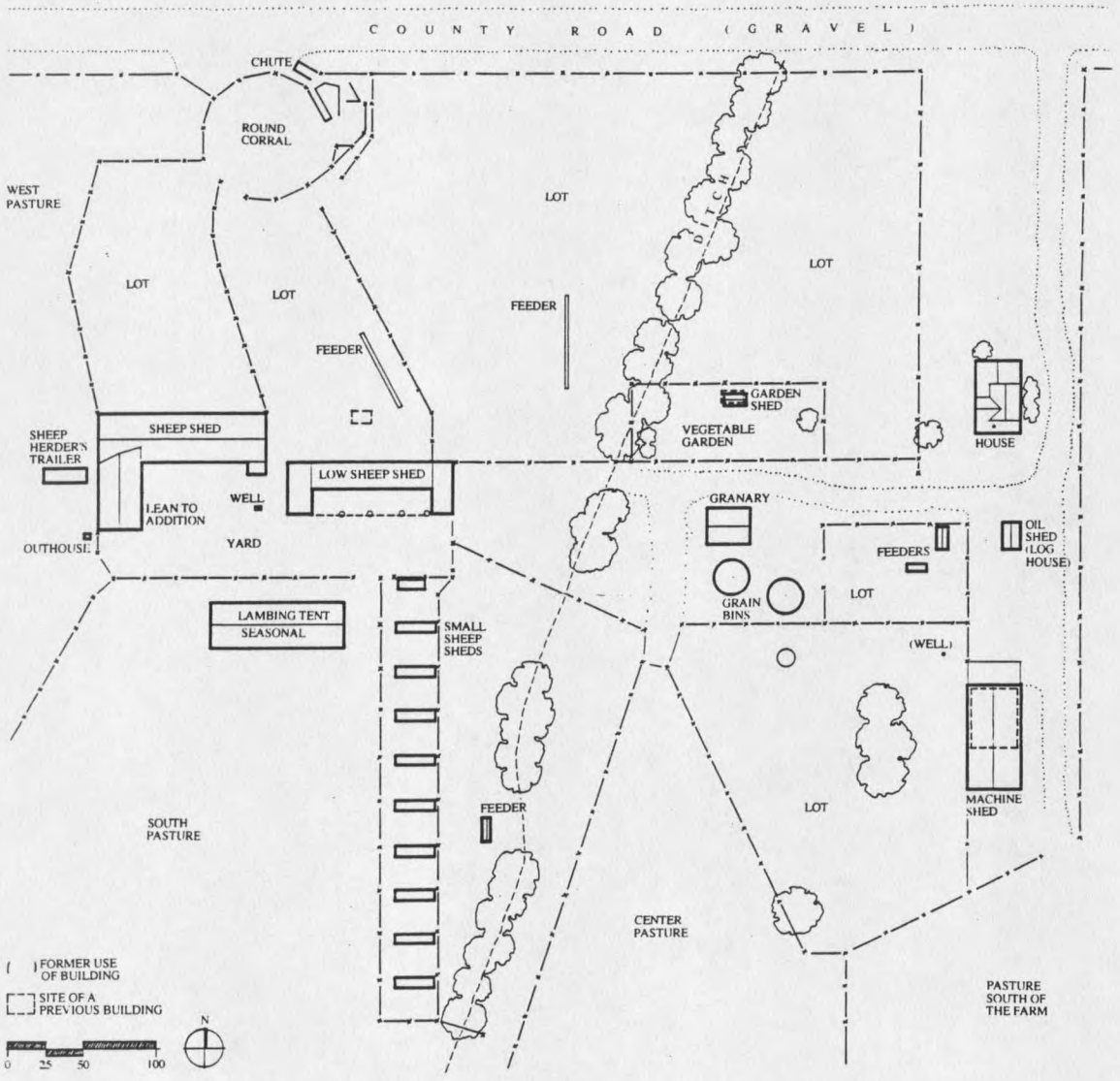


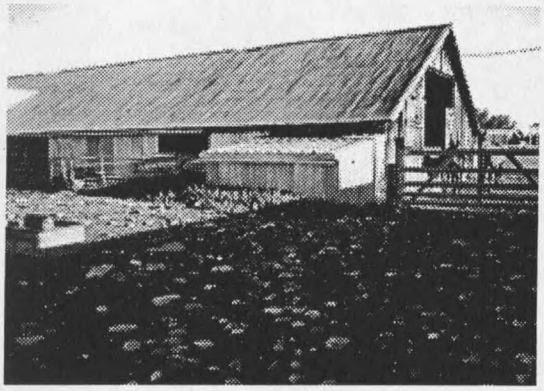
Figure 44. Site #3 - Existing site plan as a relatively loose, linear cluster of buildings.

The remaining structures -- numerous small sheep sheds, garden shed, and old log house/oil shed -- were tertiary, and constituted 49% of the structures overall. The large lambing tent was a permanent frame with a seasonal canvas roof which was erected and dismantled every year to prevent rotting of the canvas (figure 45). Primary and secondary buildings were predominantly gable roofed forms, with the exception of one primary building, which had a shed roof. Most of the tertiary buildings had shed roofs, with the exception of the old log house, which was gabled. The pitch of roofs varied widely.

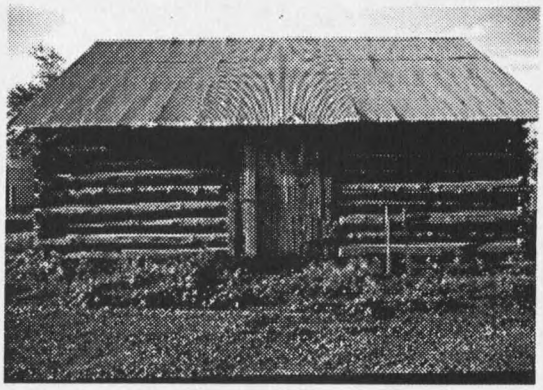
Materials of construction varied from log construction to wood frame, or post and beam. Siding materials were also varied, including vertical and horizontal wood, exposed logs, corrugated sheet metal, and asbestos tile. Roofing materials were predominantly corrugated sheet metal, with the exception of the canvas tent. The color of buildings was made somewhat uniform by the fact that 59% of them were untreated wood, and a large number were sided and/or roofed with corrugated sheet metal.

Participants

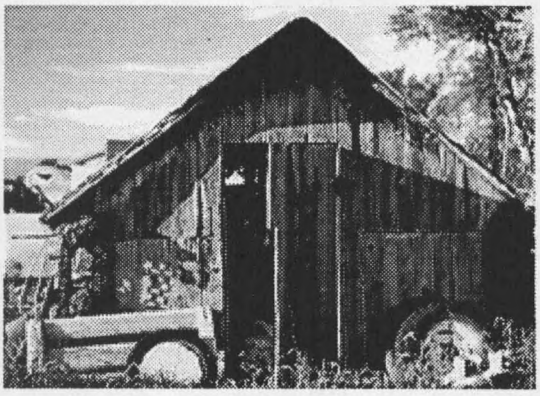
Three family members were interviewed. The first (age sixty-nine) was retired from ranching, but retained control of the family corporation. He bought the ranch in 1957, after growing up on an adjacent ranch. He was familiar with the ranch under study as a child, from visiting friends who lived there. Other participants were his son and daughter-in-law. The son was raised on the ranch, lived there at the time of the study with his own family, and was actively ranching and farming in partnership with his brother, who lived off the ranch. The son's wife, who was also interviewed, had lived in the area all her life, but on the ranch for a total of nine years. While raising a family, she also participated intensively in the work of the ranch, in particular during the spring lambing season.



sheep shed

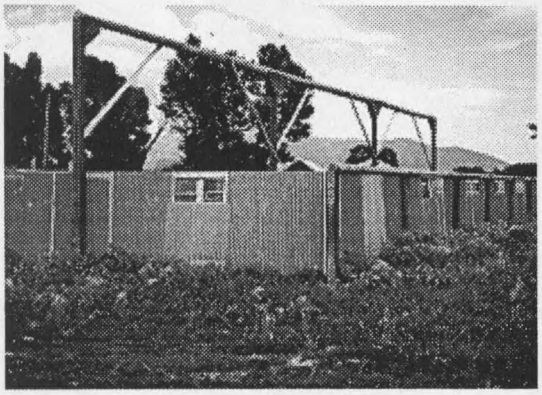


log granary



oil shed (formerly log house)

machine shed



lambing tent -- frame and walls

low sheep shed

Figure 45. Site #3 - Varied character of existing buildings.

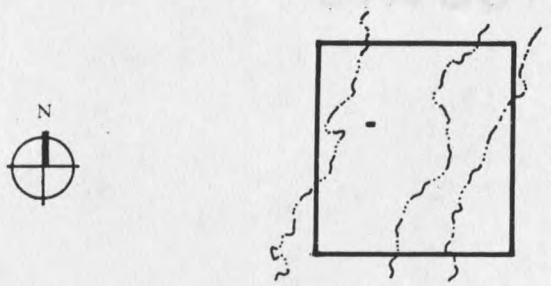
Historical Development

The development of the farmstead was reconstructed only from information related during interviews with the two generations of the family. However, the senior member of the family had done some extensive research into the history of the site.

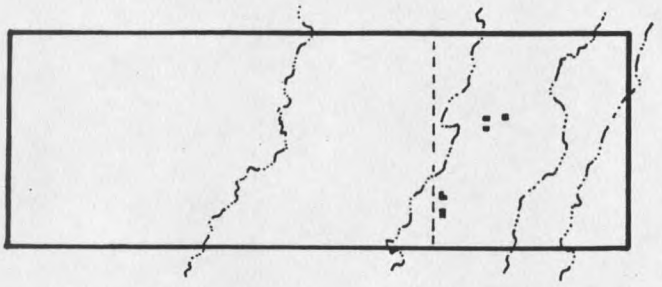
The site was first settled in 1867 as a homestead of a little less than 160 acres, which overlapped the eastern extremity of the present ranch (figure 46). By 1890 a second farmstead was established about a quarter of a mile to the south of the original one. This site was immediately adjacent to a major creek, was on slightly higher ground, and was closer to the small town with post office which had sprouted in the neighboring section to the south. At some point the family also purchased a half section of the neighboring state school section to the west. Although it is not clear exactly when this land was acquired, the construction of substantial new buildings by at least 1890 suggests that the farming operations were expanding during that period, and this would coincide with the completion of the Northern Pacific Railroad in 1883, and the expansion of markets. The operation was a sheep ranch from an early date -- at least by 1915 -- although it was not used continuously as a sheep operation.

During W.W.I the Low Line railroad was built as a freight line between Logan and Bozeman, which unevenly bisected the original homestead land, and cut between the two building sites (figure 46). The two sides were divided between two members of the family. One kept the original homestead which lay to the north of the line, and the other took the newer one -- with substantial building structures -- to the south, with far less of the original land, but with the water rights and the majority of the school section land. The family interviewed had acquired the ranch in 1957, and continued with primarily sheep raising.

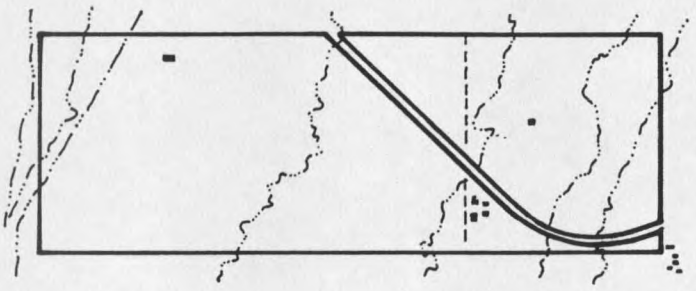
When the railroad closed, and the tracks were removed in the early 1960s, the family bought the one and a half miles of right-of-way that was adjacent to their land.



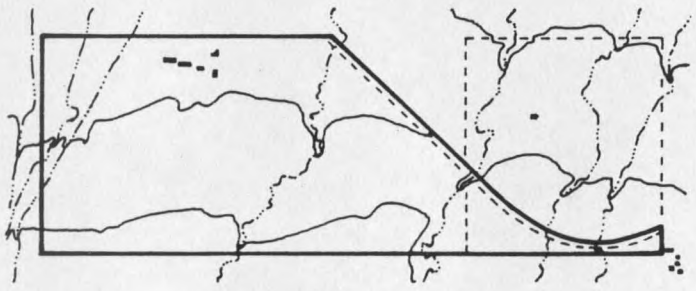
1867 - 160 acres homesteaded, with building site near the larger creek.



1890 - 320 aces of state school section acquired. A second building site was established to the south west. By 1890 a wood frame house and large horse barn were built at this site.



1915 - Two log buildings had been moved some time earlier to the southern building site. A large sheep shed was built to the west. The railroad established a right of way, dividing family land holdings. Development of ditches to the west.



1960s - 4 buildings were moved 3/4 mile in early '50s from southern building site to present site near sheep shed, for access to county road along the north edge. Railroad land was bought back.

Figure 46. Site #3 - Land holdings from 1867 to 1977. The progression of building sites was based on experience and changing conditions on the site due to the railroad.

The school section land and the small part of the original homestead together with the railroad right-of-way comprised 320 acres. Water rights were established in 1873 by the original homesteaders, and remained with the present land holding. The ditch which provided the water by rights, however, was recently washed out by high water in the river.

Evolution of the Building Site

The homesteaders' second building site consisted of at least a two story horse barn and a one and a half story "ell" shaped wood frame house -- both of which were built in approximately 1890 -- a large log granary, a small log building used as a chicken house, and a hand dug well. The log structures, which were probably many years older, may have been moved from the original homestead site. In 1890 the building site studied was not settled with buildings. By about 1915 the large sheep shed was built at the location studied, about three quarters of a mile from the early farmstead described above. This location may have been chosen for the stock because it was dryer, stony ground, and was less productive for farming.

In the early 1950s the four buildings which stood at the second building site were moved to the third site adjacent to the sheep shed. This choice may have been driven by the development of the county road to the north and the difficulty of getting motorized vehicles in winter or spring from the farm site over the railroad grade, and through a boggy gulch to reach the road. The present site had no surface water source, and the wells were two or three times as deep as that at the former site. The extant ditches, however, may have at one time carried stock water to the site. A well at the house was driven by a hand pump into a water tank until almost 1960.

A reconstruction of the building site in phases again reflected a response to the pattern established by the placement of the earliest building, and the topographical and

vegetation features of the site. Figures 47-50 illustrate the way in which an axis created by the original sheep shed seemed to guide the placement of all subsequent buildings over the following eighty years.

After the establishment of the second homestead site by at least 1890, twenty new buildings were built (four of which were primary in scale), only two were demolished (including the early horse barn), five buildings were moved (four of these were moved three quarters of a mile), and about six buildings changed function. The following table illustrates the development of the building site over time.

Table 6. Site #3. Sequence of construction and demolition of buildings divided into primary (P), secondary (S), and tertiary (T) scales.

	Before 1890			**1890-1915**			**1916-1950**			**1951-1977**			**1978-1997**		
	P	S	T	P	S	T	P	S	T	P	S	T	P	S	T
New	1	2	1	1		1				2	3	1	1		11
Demolished										1		1			
Moved		1	1				1	2	2						
Addition				1							3		2		
Changed function			1	1				1	1			1		1	1

Conclusion

The shape of land holdings and the placement of buildings of site #3 were largely changed by developments in transportation infrastructure -- the road and the railroad. Building structures, again, were considered entirely flexible and mutable. They were moved to accommodate changing needs of technology or farming practice. Farming technology and practices, in turn, were influenced by development of the larger marketplace, and the availability of transportation infrastructure to make the market accessible. While the operation at the time of the study was still primarily sheep ranching, as it was in 1915, economic changes in that market had altered the volume required to sustain a family. As a result there was a growing demand for sheltered space to house the larger number of animals in the spring lambing season. Early building placement at the

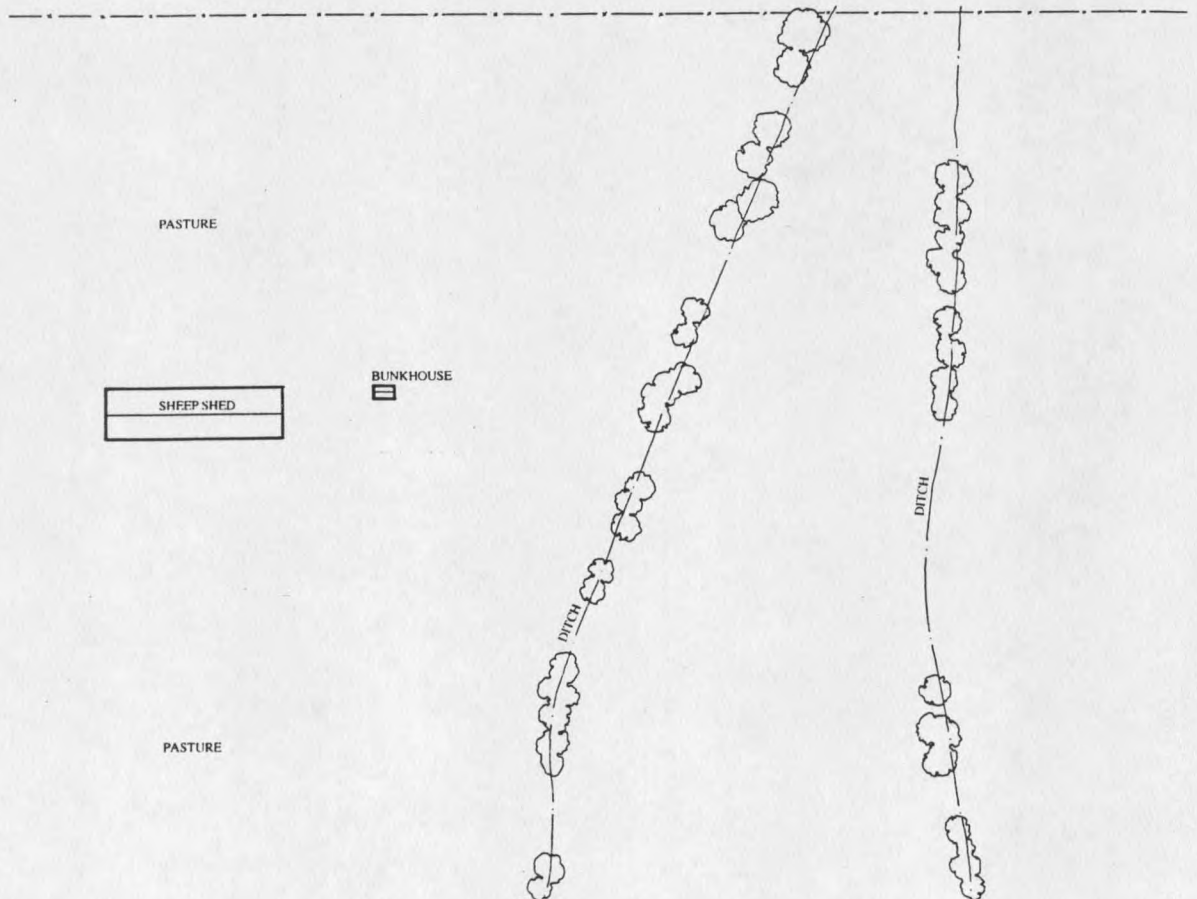


Figure 47. Site #3 - Site plan in 1915 when the sheep shed was constructed. For at least 25 years prior to this time, the log house, granary, frame house, and two story horse barn had stood on the adjacent land to the east.

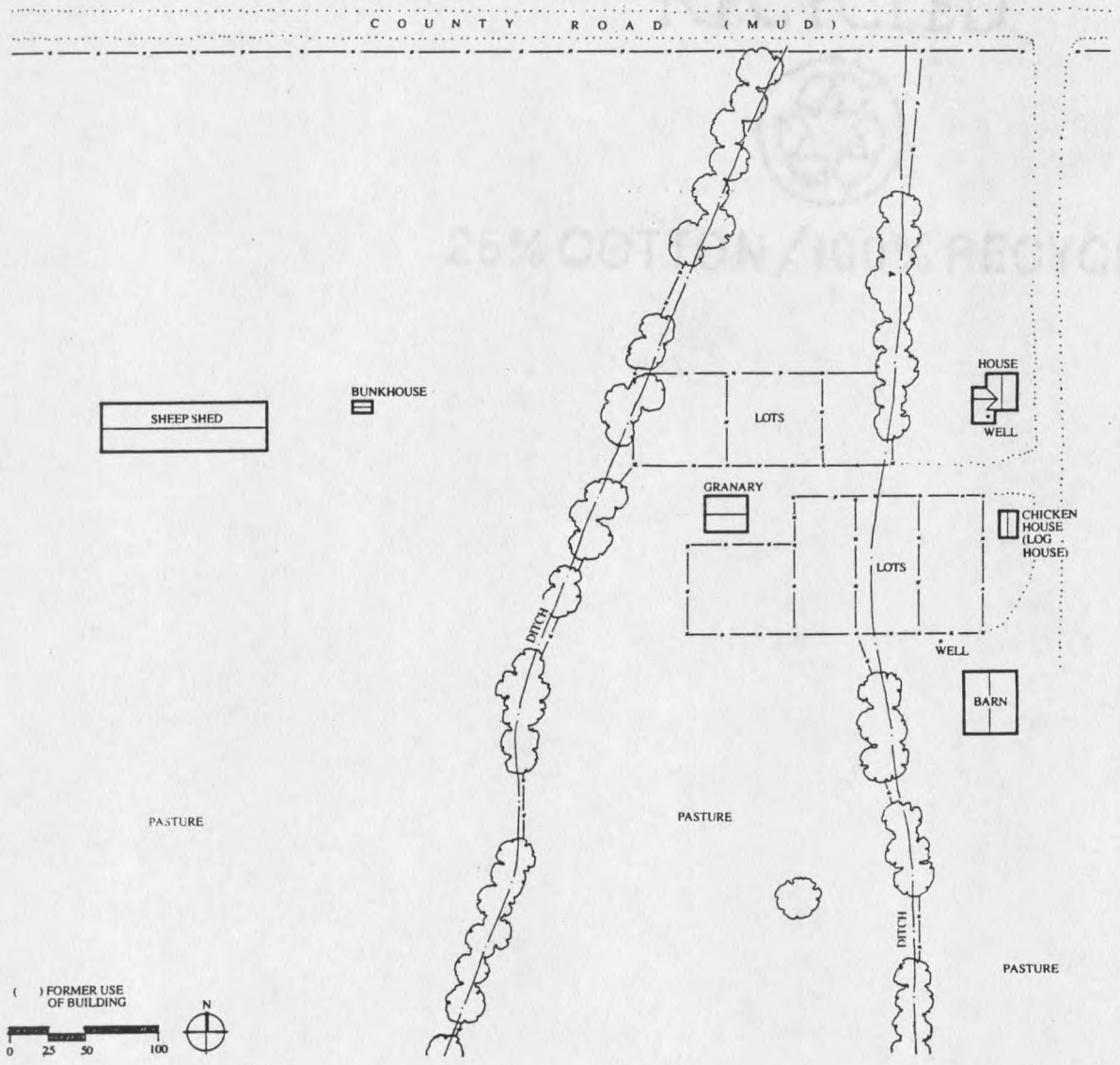


Figure 48. Site #3 - Site plan from 1916 to 1950. Four buildings were moved onto the site from three quarters of a mile east. Two of these buildings may date from the 1860s, when the land was first homesteaded.

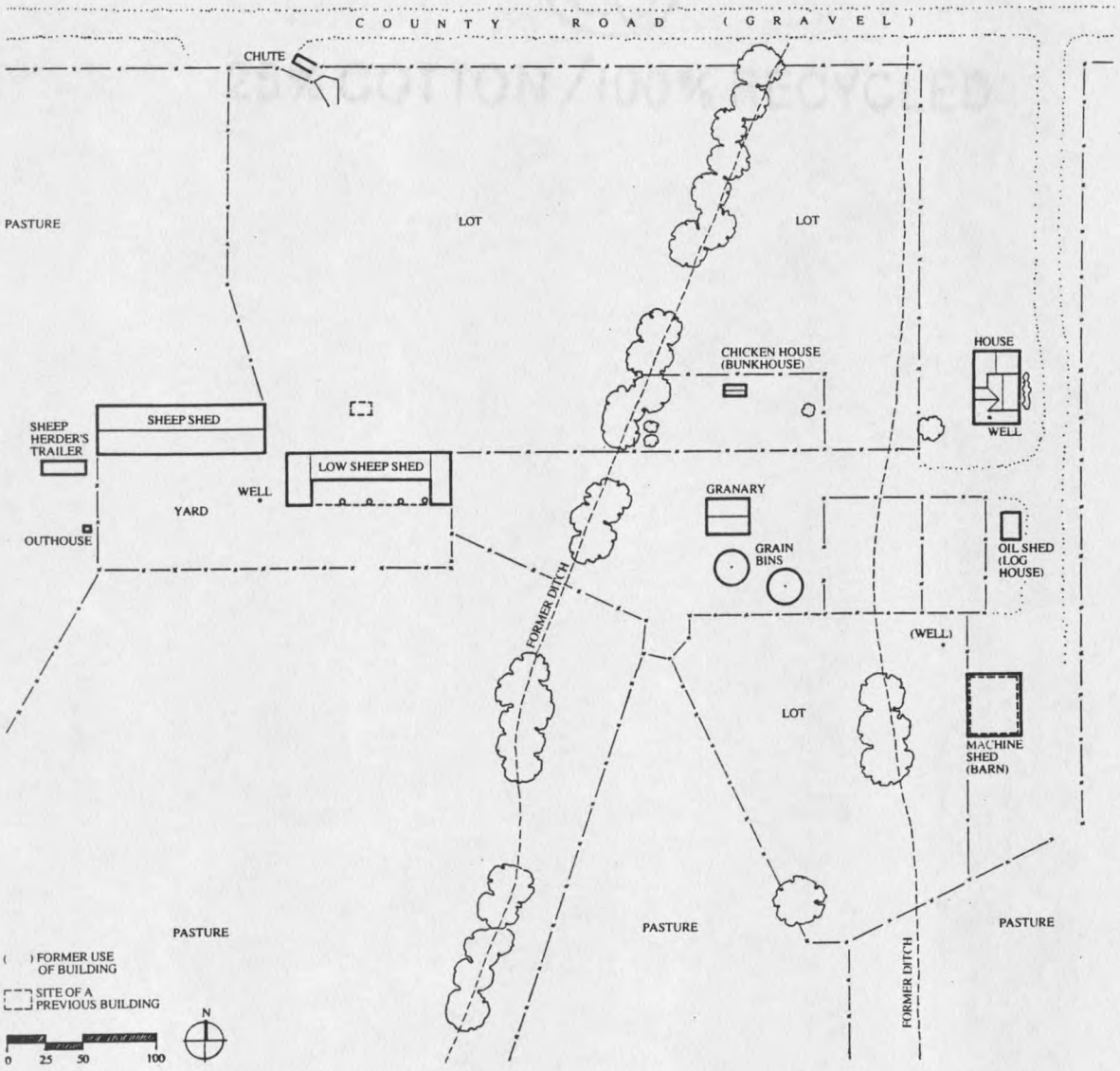


Figure 49. Site #3 - Site plan from 1951 to 1977. Six new structures were built during this time, including the low sheep shed. The horse barn was demolished and replaced with the present machine shed. A major addition was made to the original sheep shed, and multiple changes were made to the 1890 house.

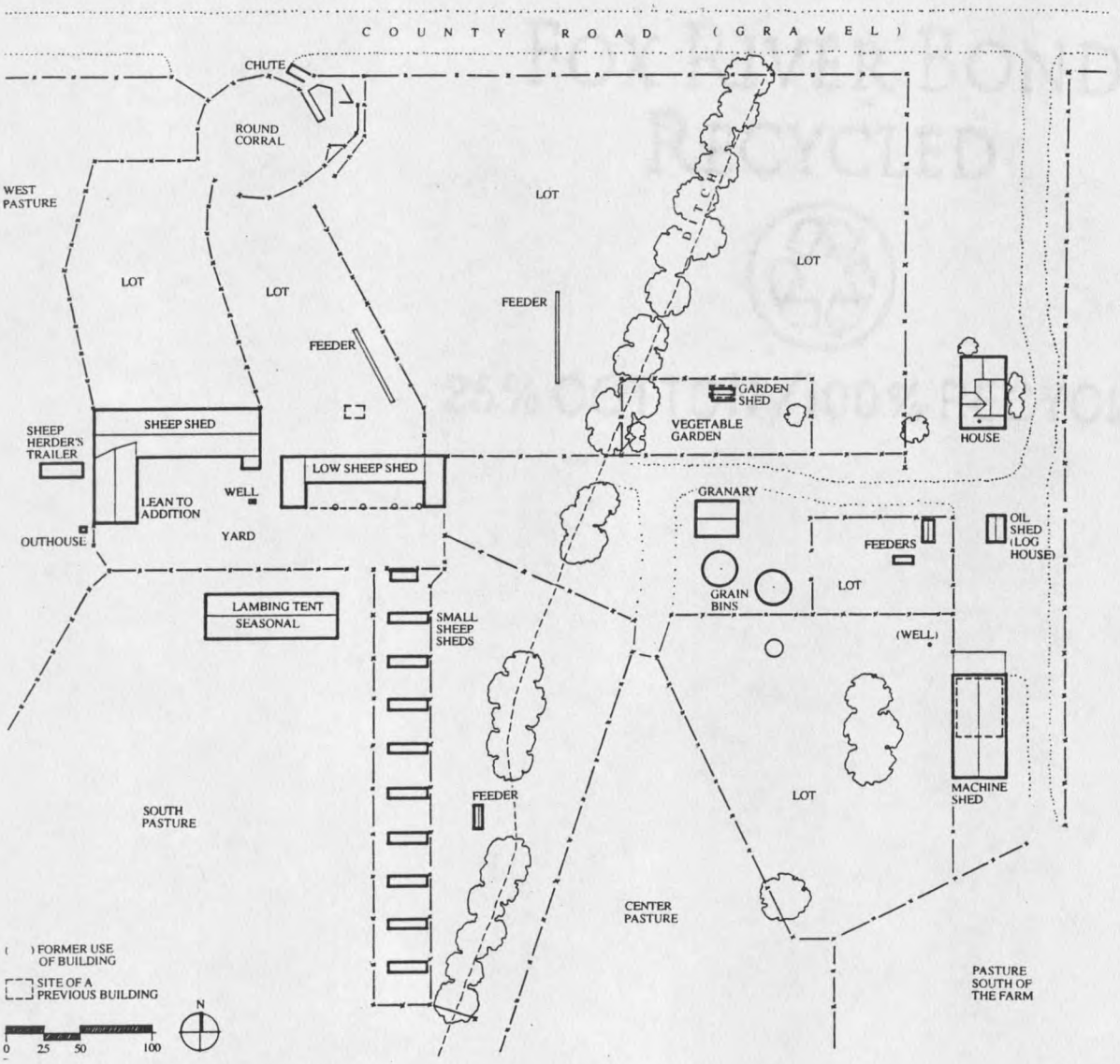


Figure 50. Site #3 - Site plan from 1978 to 1997. Twelve new buildings were constructed, including the seasonal wall tent for lambing, and multiple small sheep sheds.

present site seems to have created an implied framework on which all subsequent site plan choices were based. This established pattern remained very clear at the time of the study, as the site had evolved in complexity.

CHAPTER 6

PERCEPTION OF BUILDING & LANDSCAPE ELEMENTS

Introduction

The large volume of interview data called for a form of analysis that could effectively reduce it to get an overall view of perceptual tendencies. It was also important to look specifically at how certain building and landscape elements were perceived. The following analysis matrix served these purposes, and illustrated differences between the perceptual tendencies of individuals. It also pointed out how an individual's perceptions varied depending on the subject matter. This analysis tool made it easy to examine comparisons between groups of people, such as those belonging to distinct study sites, one generation and another, or women and men. Auditory and olfactory senses did not become significant in this study, and so they were omitted from the matrix. Each matrix became a signature of the individual, and made differences readily apparent.

On the following pages are the building and landscape elements analysis matrices derived from the interviews with each of the nine participants. They illustrate at a glance the emphasis of each individual's perceptions regarding physical features of the natural and built environment. They highlight each person's concerns, whether buildings, natural elements, the relationship between the two, or the larger region. *Family stories and memory*, although really a part of *social / cultural / historical knowledge* became so significant in other aspects of the analysis, that it seemed appropriate to isolate them here as a category.

Individual Perceptual Preferences: Analysis of the Matrix

Participants are identified in the upper left corner of these tables by their site number followed by a letter, so that those with experiences at the same site may be easily identified. Participant "C" in each case was female. One participant at each site gave a site tour, which was extensive in each case, and tended to blend seamlessly with the interview. Site tour transcripts were combined with interview transcripts. These individuals are identified with "site tour" after their number. The tables with more marks in them represent interviews that lasted longer. To compensate for the various lengths of interviews, the proportion of marks in each part of the matrix is more significant than the number of marks.

Site #1

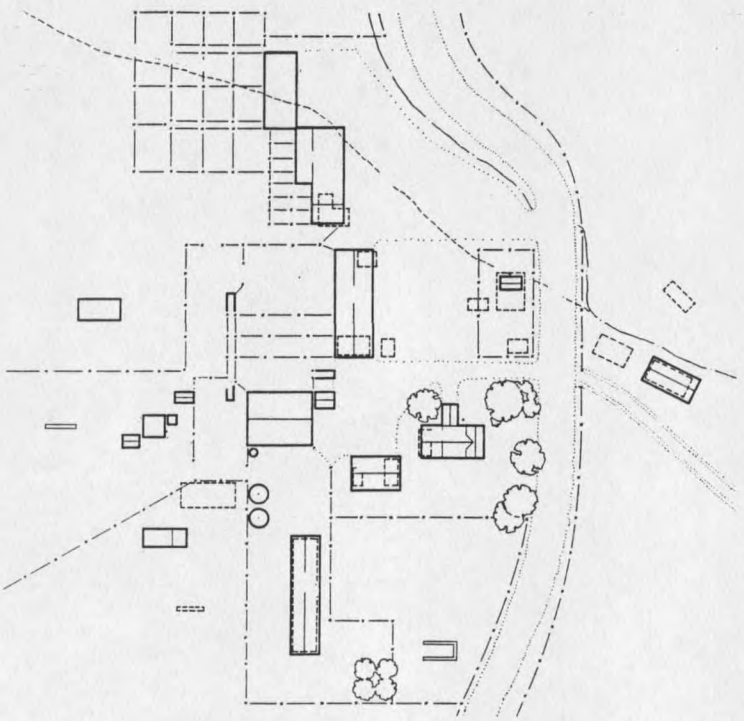


Figure 51. Site #1 - Site plan, 1997.

At site #1 all participants were raised on the farmstead -- where there have been five generations of family history on the site -- and all three have been active in the livestock and farming operations of the place. Two adult brothers (1-A and 1-B) and their retired mother (1-C) were interviewed (tables 7 - 9). All revealed an emphasis on haptic perception, but 1-A and 1-C reflected a balance of visual and social knowledge as well (as long as family stories and memory are counted as social knowledge). Interview 1-B, by contrast, exhibited a tremendous preference for haptic perceptions, that is understanding of the place derived from physical action, work, and participation. Interestingly, this participant had spent by far the least number of years living at the site, and as an adult he had engaged in a very similar level of physical labor as his brother (1-A). His haptic experiences may, therefore, reflect an individual learning style, rather than a characteristic of living and working in that particular place.

All three showed a strong inclination to understand the function of buildings through their physical work in and around them. However, 1-A and 1-C also exhibited an understanding of building function -- often former building uses -- through family stories that were remembered and passed down, sometimes through several generations. Participant 1-B did not share so actively in the family story-telling, but related his own experiences powerfully.

Awareness of the construction and the structural characteristics of buildings was also high among all three, but again 1-A and 1-C showed an awareness that was generated from a broad spectrum of visual, haptic, and social learning, while 1-B reflected his understanding almost singularly from his active involvement in the construction and maintenance of buildings. He related memories of experiences as a young adult of helping his father in the construction of a primary building on the site. A generally high haptic awareness of building form and other building qualities also

Table 7. Site #1 - Interview #1-A, perception of building and landscape elements.

#1 - A (site tour)	**Visual**	**Haptic / Kinesthetic (work)**	**Soc./ Cult./ Hist. knowl.**	**Family stories / Memory**
Perception of design attributes of bldgs / structures:				
Bldg. character	IIII		II	
Bldg. age		I		IIII
Form	II			I
Plan	IIII	IIII		IIII
Surface				
Openings	III			I
Circulation	I			
Structure / constr.	IIIIIIIII	IIIIIIIIIIII	I	IIIIIII
Color	I			
Materials	IIIII		I	I
Scale	I	I		
Function	III	IIIIIIIIII		IIIIIIIIIIII
Other				I
Percept. of relationships (bldgs/land):				
Proxim. of struct.	I	III		
Site plan org.	IIIIIIIIIII	IIIIIII	III	II
Struct. / topog.	II			
Ditches				
Roads / railrd.	IIIIII	IIIIIIIIII	III	IIIIIII
Views (out/in)	II		I	
Land use	II	IIIIIIIII	IIIII	IIIIIII
Boundaries	III	IIIII		
Livestock	II	IIIIIIIIIIIIIIIIIIIIIIIII	II	IIIIIIIIIIIIIII
Perception of natural elem.:				
Season / weather		IIIIIIIII	III	IIIII
Natural water	IIIII	IIIIIII	IIIIIIII	II
Lone trees	I	I		
Topography	IIIIIIII	IIIIIIIIII	I	I
Vegetation	III	I		I
Ground texture		IIIIIIIII		
Wildlife			I	
Size / ownership	I	II	IIIIIII	IIIIIII
Perception of larger region:				
Neighbor	IIII	II	IIIIIII	IIIIIIIII
Town	I	II		IIIIII
Gallatin Valley			IIII	
S.W. Montana				
Montana	I	I	III	II
Agricult. West	I	II	IIIIII	

Table 8. Site #1 - Interview #1-B, perception of building and landscape elements.

#1 - B	Visual	Haptic / Kinesthetic (work)	Soc./ Cult./ Hist. knowl.	Family stories / Memory
Perception of design attributes of bldgs / structures:				
Bldg. character	II			
Bldg. age	I	IIII		I
Form	I	II		III
Plan	II	IIIIIIIIIIIIIIII		
Surface		II		
Openings	II	IIIIIIIIII		
Structure / constr.	IIIII	IIIIIIIIIIIIIIIIII		I
Color	II			
Materials	II	IIIIIIIIII		
Scale	III	IIIIIIIII		
Function	III	IIIIIIIIIIIIIIIIIIIIIIIIIIIIII IIIIIIIIIIII		IIII
Other		IIIII		
Percept. of relationships (bldgs/land):				
Proxim. of struct.		IIIII		
Site plan org.	IIII	IIIIIIIIIIIIIIII		
Struct. / topog.		IIII		
Roads / railrd.	IIIIIII	IIIIIIIIIIII		III
Views	III			
Land use	III	IIIIIII		
Boundaries	II	IIIIII		
Livestock	IIIII	IIIIIIIIIIIIIIIIIIIIIIIIIIIII IIII		IIII
Perception of natural elem.:				
Season / weather		IIIIIIIIIIII		
Natural water		IIIIIIIIIII		I
Wooded areas		II		
Topography	IIII	IIIIIIIIIIIIIIII		I
Vegetation		III		
Ground texture		IIIIIIII		
Wildlife		IIIIIIIIIIIIIIIIIII		
Size / ownership		IIII	II	
Perception of larger region:				
Neighbor	IIIIIII	IIIIIIII	IIIII	II
Town	IIII	IIIIIIIIIIIIIIIII	IIIIIII	IIIIIIII
Gallatin Valley		II	I	I
S.W. Montana			I	
Montana			I	
Agricult. West		II	IIII	II

Table 9. Site #1 - Interview #1-C, perception of building and landscape elements.

#1 - C	Visual	Haptic / Kinesthetic (work)	Soc./ Cult./ Hist. knowl.	Family stories / Memory
Perception of design attributes of bldgs / structures:				
Bldg. character	III			I
Bldg. age				I
Form	III			
Plan	III			II
Surface	III			I
Openings	II			
Circulation				
Structure / constr.	IIIII	IIIIIII		IIIIIIII
Color				
Materials	II			II
Scale				
Function	III	IIIIIIIII	I	IIIIIIIII
Percept. of relationships (bldgs/land):				
Proxim. of struct.		I		
Site plan org.	IIIIIIIIIIII	IIIII		III
Struct. / topog.	IIII	II		II
Ditches		I		I
Roads / railrd.	II	IIIIIIII	III	III
Landsc. elem.	I			
Land use	II	III	I	I
Boundaries		I		
Livestock		IIIIIIIIIIIIIII		IIII
Perception of natural elem.:				
Season / weather		III		I
Natural water	I	I		I
Wooded areas	I	III		II
Lone trees	I	I		
Topography	II	IIIIIIII		
Vegetation	I		I	
Ground texture	I			I
Wildlife				
Size / ownership			II	IIIIIIIII
Perception of larger region:				
Neighbor	I		III	II
Town		III		II
Gallatin Valley			III	I
S.W. Montana			II	
Montana				
Agricult. West	I		I	I

characterized his perceptions. Interviews 1-A and 1-C reflected a strongly visual sense of site plan organization, (the overall placement of buildings and structures in relation to each other and to the natural landscape), while 1-B again understood the layout in terms of his own activity and work.

A sensitivity to the accommodation and needs of livestock on the land was very significant in all three interviews. As the stock represented a livelihood, the animals were understood clearly from the point of view of working them. Some eventful stories about stock also served as a significant basis for understanding past operations of the ranch, in particular by participant 1-A, who related events of his grandfather and great grandfather managing stock.

Topography of the place was thoroughly understood by physical activity on the land itself. For 1-A and 1-B, who were actively farming, the weather, natural water sources, and ground texture were also very important in their understanding of the land, and were haptically rather than visually perceived. A strong sense of social and cultural knowledge of natural water sources was revealed in interview 1-A, because he was involved a legal dispute with neighbors over water rights. Social and cultural knowledge of the ownership of land emerged as significant in two of the interviews, as family stories and histories were told about the sale of land, the loss of land to the railroad, and contention between neighbors in the recovery of former railroad lands.

The two brothers (1-A and 1-B) perceived neighbors and the nearby town as important ways of knowing the place. However, one brother (1-A) expressed this mainly as social and cultural knowledge, or as stories from the family, rather than as direct experience from involvement. The perceptions of his brother, on the other hand, were largely haptic -- based on his own experience -- but showed a distribution of visual and social knowledge as well.

Site #2

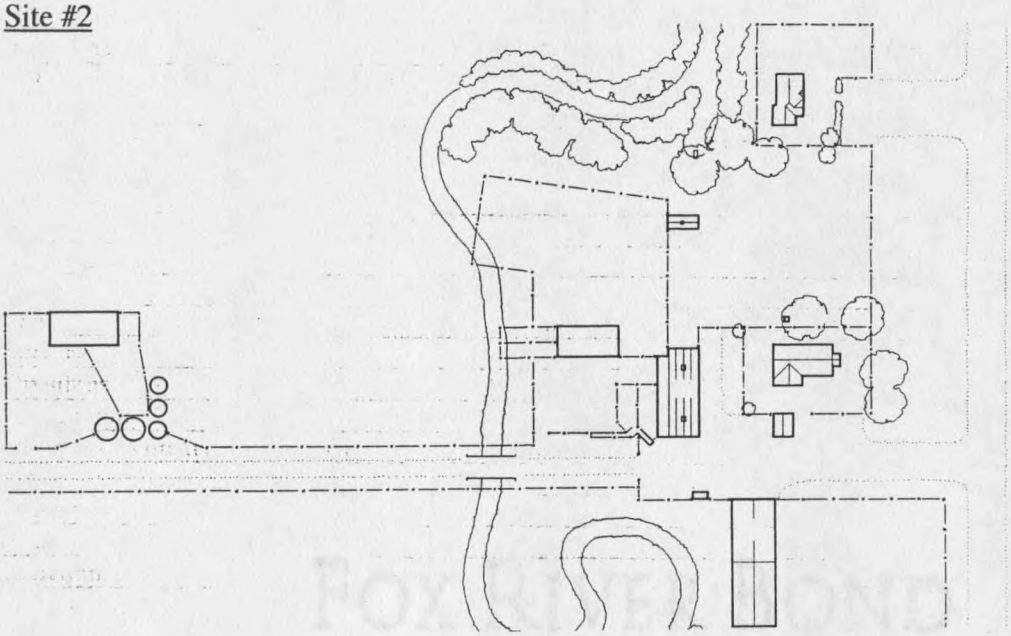


Figure 52. Site #2 - Site plan, 1997.

Those interviewed at site #2 (tables 10 - 12) were a working cattle rancher and his retired parents. The active rancher (2-A) was the third generation of the family to run the operation. The mother, in this case, was actively involved with the household and child-rearing, and did participate in a significant way in the daily labor of the ranching operation. The matrices of all three suggested a tendency to perceive the physical setting through haptic sensibilities. They understood the place through their physical work in it. One major exception to this was the retired father's (2-B) perceptions of natural water sources and vegetation, which were perceived visually as well as haptically, and were understood through social and cultural knowledge, and through family stories. Perhaps an explanation for his widely ranging perception is that he had initiated many years of progressive range management with the County Agricultural Extension Service. He developed re-vegetation sites on the extensive riparian areas which ran through the ranch with the creek drainages. He also compared the moisture and lush growth to his parents' previous, drier ranch in central Montana.

Table 10. Site #2 - Interview #2-A, perception of building and landscape elements.

#2 - A	Visual	Haptic / Kinesthetic (work)	Soc./ Cult./ Hist. knowl.	Family stories / Memory
Perception of design attributes of bldgs / structures:				
Bldg. character		II		I
Bldg. age			I	I
Form		I		
Plan	I	I		I
Surface	I			
Openings				
Circulation				
Structure / constr.	II	IIIIIII		I
Color	III			
Materials				
Scale		II		
Function		IIIIIII		III
Percept. of relationships (bldgs/land):				
Proxim. of struct.	I	II		
Site plan org.	I	III	II	I
Struct. / topog.				
Ditches				
Roads		III		
Landsc. elem.				
Views (out/in)				
Land use		III	I	IIII
Boundaries				
Livestock		IIIIIIII		IIII
Perception of natural elem.:				
Season / weather	II	IIIIIIIII		
Natural water		IIII	I	
Wooded areas		I		
Lone trees	I			
Topography		II		
Vegetation	II	II	III	
Ground texture		II		
Wildlife	I	II	III	
Size / ownership			II	III
Perception of larger region:				
Neighbor				
Town		II		
Gallatin Valley		II	I	II
Montana			II	II
Agricult. West		I		I

Table 11. Site #2 - Interview #2-B, perception of building and landscape elements.

#2 - B (site tour)	**Visual**	**Haptic / Kinesthetic (work)**	**Soc./ Cult./ Hist. knowl.**	**Family stories / Memory**
Perception of design attributes of bldgs / structures:				
Bldg. character	||||	|||		|
Bldg. age	|	|||||	|||	||||
Form	|	||		
Plan	|	||||||||||	||	|||
Surface				
Openings	|	|		
Circulation		||		
Structure / constr.	|||||	||||||||||||||||||||||	||||	|||||||
Color	||||			
Materials	||||	||||	|	||
Scale	|	||		
Function	||	||||||||||||||||||||||||||||||| ||||||||||||||||	|||	|||||
Percept. of relationships (bldgs/land):				
Proxim. of struct.		||	|||	||||
Site plan org.	||||	|||||||||||||	||	||||
Struct. / topog.				
Ditches		||		
Roads	|	||||||	|||||	|||||
Landsc. elem.	|	|		
Land use	||	||||||||||||||	|	||
Boundaries	|||||||	||||||	||	|
Livestock		||||||||||||||||||||||||||||||| |||||||||	||	|||
Perception of natural elem.:				
Season / weather	|||||	||||||||||||||||		||
Natural water	|||||||||||||||	|||||||||||||||||||	|||||||||	||||||||
Wooded areas	|||			|
Lone trees	|	|||	||||	|
Topography		||||		|
Vegetation	||||||||||||	|||||||||	|||||||||||	|||
Ground texture	|	||||||||||		
Wildlife	||||	||||||||	|	|||
Size / ownership	||		||||	||||||||||
Perception of larger region:				
Neighbor	|||		||||	||||
Town		||		||
Gallatin Valley	||	|	|||||||||	|
S.W. Montana	|	||		|
Montana			|	|

Table 12. Site #2 - Interview #2-C, perception of building and landscape elements.

#2 - C	Visual	Haptic / Kinesthetic (work)	Soc./ Cult./ Hist. knowl.	Family stories / Memory
Perception of design attributes of bldgs / structures:				
Bldg. character	I	II		
Bldg. age			I	I
Form	II			
Plan	III	IIIII		
Surface		I		
Openings				
Circulation				
Structure / constr.	III	III		
Color				
Materials	II	I		
Scale				
Function		IIIII		I
Percept. of relationships (bldgs/land):				
Proxim. of struct.		IIIII		
Site plan org.	III	III	I	I
Struct. / topog.	I			
Ditches				
Roads		II		
Landsc. elem.				
Land use		II		
Boundaries				
Livestock		II		
Perception of natural elem.:				
Season / weather		III		
Natural water	I	IIIIII	I	
Wooded areas				
Lone trees		IIIII	I	I
Topography				
Vegetation				
Ground texture		III		
Wildlife				
Size / ownership				I
Perception of larger region:				
Neighbor		I		I
Town		IIII		
Gallatin Valley				
S.W. Montana				
Montana				
Agricult. West				

All three of those interviewed reflected a knowledge of both the structure and function of buildings from participating in physical work, the father extremely so. The two parents (2-B and 2-C) expressed haptic understanding of the floor plan of buildings. The mother's interest was regarding changes in the dwelling over time, while the father perceived floor plan organization and reorganization of the agricultural buildings as well as the dwelling.

Both of the men (2-A and 2-B) placed great emphasis on their understanding of the needs and accommodation of animals by being involved with working stock on an almost daily basis. This may also be due to the fact that they used horses daily in their work around the ranch because of the many creek crossings and areas of boggy ground. The son's interview (2-A) suggested that family stories about livestock were also significant in his knowledge of the place.

Land uses and site plan organization were haptically understood by both father and son, through their extensive work and movements about the ranch, and of course because each of them had been responsible for decision-making regarding land uses. The mother's knowledge of site plan was also prominent (2-C), although her knowledge by active involvement was focused on the proximity and placement of the buildings near the house rather than the larger site-- a more localized sense of site plan.

Widely ranging perceptions of the roads were characterized in the father's interview (2-B). In particular, he understood them through his own work activity, through historical research, and through family stories. His heightened awareness of the road through the ranch may be due in part to his experiences of sharing the right of way with a neighboring ranch, until he was able to buy out the neighbor so that the family could control the right of way.

The family revealed a consistently participatory awareness of the weather conditions. The mother's perceptions, however, were expressed through her awareness of

the haptic experiences of her children. For the same reasons the mother also exhibited a strongly haptic sense of natural water sources, since her children swam in a year-round creek which encompassed the building site.

Awareness of the ground texture emerged as significant haptic knowledge, in particular to the parents (2-B and 2-C). The mother's perceptions regarded mainly the muddy county road into town, before it was paved, and the problems of the school bus getting stuck. The father also focused on the boggy road, the difficulty of getting grain trucks and stock trailers back and forth to town. He also expressed an acute awareness of the moisture in the ground in various pastures or grain fields at different times of the year. In general they all shared an appreciation for the plentiful moisture -- creeks and sub-irrigated ground -- by comparison with an earlier generation of the family who had struggled with dry land farming elsewhere.

The retired father (2-B) expressed a considerable awareness of Gallatin Valley agricultural history. He had done some research on the history of the ranch, and also had served on numerous agricultural boards within the valley, and so was aware of a wider history from his contact with other ranchers. Overall, perceptions of the family at this site were focused on their active participation and work with the elements the place itself offered them.

Site #3

Individuals interviewed at the third site (tables 13 - 15) consisted of a retired rancher (3-A) who remained the head of the family corporation, his son (3-B) who grew up on the site and continued to live there with his own family, actively ranching cattle and sheep with his brother, and the son's wife (3-C) who participated intensively in ranch work during the spring lambing season, and had lived there for nine years.

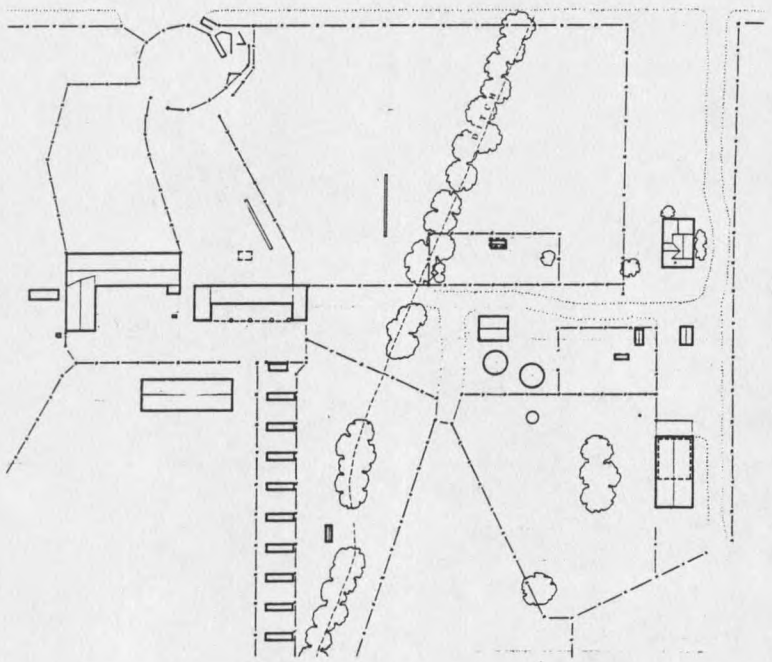


Figure 53. Site #3 - Site plan, 1997.

The matrices of participants at this site again indicated an overwhelming majority of haptic perceptions. The results suggested they knew the buildings and land through their work and physical contact with it. The retired rancher (3-A) and his daughter-in-law (3-C) exhibited a clearly visual appreciation for design attributes of buildings. A strong representation of historical knowledge of the landscape relationships and the larger region also characterized the matrix of the senior family member. His daughter in law, on the other hand, who had only lived on the ranch for nine years, revealed a dearth of social, cultural, or historical understanding of the place, except in the form of stories related to her by her husband.

In general this group expressed a strongly haptic sense of building construction and structure. This is not surprising, since a very large number of buildings on the site had been built or renovated during the time that each of them had lived there, and they

Table 13. Site #3 - Interview #3-A, perception of building and landscape elements.

#3 - A (site tour)	**Visual**	**Haptic / Kines-thetic (work)**	**Soc./ Cult./ Hist. knowl.**	**Family stories / Memory**
Perception of bldgs / structures:				
Bldg. character	IIIIIIIII	I	I	
Bldg. age	IIII	IIIIII	IIIII	II
Form	IIIIIIIIIIIII	IIIIIII	I	II
Plan	IIIII	IIIIIIIIIIiIIIII	I	
Surface	I	IIIIIII		
Openings	IIII	IIIIIIIIIIIIII		IIII
Structure / constr.	IIIIIIIIIIIIII	IIIIIIIIIIIIIIIIIIIIIIIIIIIIII IIIIIIIIIIIII	II	II
Color	IIIII	II		
Materials	IIIIIIIIIIII	IIIIIIIIIIIIIIIIIIIIIII		
Scale	IIIIIII	IIIIII		
Function	IIIIIIII	IIIIIIIIIIIIIIIIIIIIIIIIIIIIII IIIIIIIII	IIIIII	IIIII
Other/temp.		IIIIIIIII		
Percept. of relation-ships (bldgs/land):				
Proxim. of struct.	II	IIIII	IIII	
Site plan org.	IIIIIIIII	IIIIIIIIIIIIIIII	IIIIIII	II
Struct. / topog.	I			
Ditches		IIIIIIIIIIIIII	IIII	I
Roads / railrd.	IIIII	IIIII	IIIIIIIII	II
Land use	I	IIIIIIIIIIIII	IIIIIII	
Boundaries	II	IIIIIIII	III	
Livestock	I	IIIIIIIIIIIIIIIIIIIIIIIIIIIIII IIIIIII	IIII	II
Perception of natural elem.:				
Season / weather		IIIIIIIIIIIIIIIIIIIIIIIIIIIIII IIIIIIIII		
Natural water	IIII	IIIIIIIIIIIIII	IIII	II
Wooded areas	IIIII	IIIIII		
Lone trees	II	III	I	
Topography	I	IIIIIIIIIII	III	
Vegetation	IIIIII	IIIIIII	I	
Ground texture	I	IIIIIIIIIIIIIIIIIIIIIIIIIIIII	IIIIII	
Wildlife	I	IIIII	II	II
Size / ownership		IIIIIII	IIIIIIIIIIIIIIIII	IIIIIII
Larger region:				
Neighbor	IIII	IIII	IIIIII	I
Town		I	IIIIIII	III
Gallatin Valley		I	IIIIIIIIIIIIIIIII	IIIIIII
S.W. Montana		I	IIIIIII	III
Montana			IIIIIIIIIIIII	
Agricult. West			IIIIIIIIII	

Table 14. Site #3 - Interview #3-B, perception of building and landscape elements.

#3 - B	Visual	Haptic / Kinesthetic (work)	Soc./ Cult./ Hist. knowl.	Family stories / Memory
Perception of bldgs / structures:				
Bldg. character	III	II		I
Bldg. age		I	III	
Form	I		I	
Plan		I		I
Surface				
Openings		II		I
Circulation		IIII		II
Structure / constr.		IIIIIIIIIIIIIIIII	III	IIIIIIII
Color	I			
Materials	I		I	
Scale		II		
Function	II	I	I	III
Other		I		
Percept. of relationships (bldgs/land):				
Proxim. of struct.	I	I		
Site plan org.	III	IIIIII		
Struct. / topog.				
Ditches		IIIIIIIIIIIIIII	III	
Roads / railrd.	IIIIIII	IIIIII	IIII	I
Views (out/in)				
Land use	II	III	II	I
Boundaries	III	IIIIII		I
Livestock		IIIIIIIIIIIII		II
Perception of natural elem.:				
Season / weather		IIIIIIIIIIIII	I	
Natural water	II	IIIIII	IIII	
Wooded areas	I			
Lone trees				
Topography	II	IIIIIIIIII	III	I
Vegetation	I	II		
Ground texture	I	IIIIIII	I	
Wildlife	I		I	I
Size / ownership		IIIIIII	IIIII	IIIII
Perception of larger region:				
Neighbor	IIII		IIII	III
Town				
Gallatin Valley	II	III	IIIIIIIIIII	
S.W. Montana			IIII	
Montana			II	
Agricult. West				

Table 15. Site #3 - Interview #3-C, perception of building and landscape elements.

#3 - C	Visual	Haptic / Kinesthetic (work)	Soc./ Cult./ Hist. knowl.	Family stories / Memory
Perception of bldgs. / structures:				
Bldg. character	III	I		
Bldg. age	I			III
Form	II			I
Plan	I	IIIII		
Surface	I	II		
Openings	II	IIIIII		
Circulation		IIII		
Structure / constr.	IIII	IIIIIIIII		IIII
Color	II			
Materials	IIIII	III		
Scale	I			
Function	IIIIIII	IIIIIIIIII		III
Other/temp.		IIIIIIIIII		
Percept. of relationships (bldgs/land):				
Proxim. of struct.	II	IIIIIII		
Site plan org.	IIIIIIII	III		
Struct. / topog.				
Ditches	I			
Roads / railrd.	III	III		
Landsc. elem.	I	I		
Views (out/in)	I			
Land use			I	IIII
Boundaries				
Livestock	III	IIIIIIIIIIII		III
Perception of natural elem.:				
Season / weather	III	IIIIIIIIIIIIIIIIIII		
Natural water		III		
Wooded areas	II			
Lone trees				
Topography	II	II		
Vegetation		I		III
Ground texture		I		
Wildlife		I		
Size / ownership		II		I
Perception of larger region:				
Neighbor		III	I	
Town		I		
Gallatin Valley			II	
S.W. Montana		I		
Montana				
Agricult. West				

had all participated in various ways in the construction process. Aside from his participatory understanding of building structure, and related family stories, the son (2-B) expressed relatively little interest in the attributes of the buildings. His wife (2-C) and father (2-A), however, placed great emphasis on their discussion of buildings, from both a visual and haptic point of view.

While the emphasis of all three interviews was on haptic understanding of the relationships of built elements to land, there was also some tendency for knowledge of the site plan organization, roads, and railroad to be expressed also as a visual perception. It is worth noting that irrigation ditches and topography figured largely in the perceptions of father and son (3-A and 3-B), who had each spent years of their lives managing the irrigation of the dry land. The wife (3-C) who did not participate actively in the irrigation process revealed very little awareness of either ditches or topography. The father (3-A) also revealed considerable social, cultural and historical knowledge of the site because of his own long history within the community, and his research into the history of the original homestead, the changes of ownership, and early land holdings. All three matrices illustrated a prominent concern for the needs and accommodation of the cattle and sheep from a highly participatory standpoint.

Seasons and weather conditions figured largely in the haptic perceptions of each of the participants at this site. The active rancher (3-B) expressed an awareness of several significant features of the natural landscape, but the sensibilities of his wife (3-C) were focused almost singularly on seasonal changes and variations in temperature, especially during the period she spent overseeing the lambing, day and night, during the spring months. The retired rancher (3-A) had vivid haptic recollections of the weather, creeks, irrigation ditches, topography, and ground texture. Working knowledge of the topography was not only extensive but highly refined in father and son, from the management of gravity-fed, flood irrigation.

Ownership of land was a dominant topic for the senior rancher (3-A), who discussed it from the standpoint of working farm acreage, social knowledge, and family stories. He was responsible for the difficult decision of placing the ranch on the market, a topic which also arose dominantly in his son's perceptions of the place (3-B). The retired rancher exhibited extensive cultural and historical knowledge of the community and the larger region, as he had not only served on many local and state livestock boards, but had done considerable research on his own.

Conclusion

Perceptions of interviewed ranching families, as explored in the analysis of matrix diagrams, revealed an overwhelming tendency to understand physical settings through physical labor. The more generations the family had spent at a site, the more likely they were to relate their understanding of the place also by family stories, handed down. Regarding the attributes of buildings, it was generally the construction, integrity of structure, maintenance, and function of buildings that concerned them. Haptic awareness of the function -- and often changing function -- of buildings was one of the two largest categories of perception throughout the study. The surface qualities and color of buildings appeared to be on the lowest order of significance to those interviewed regarding buildings.

At the level of the larger landscape and the relationship of natural and built elements, a general awareness of the whole site plan organization was surprisingly high across all participants. The women interviewed tended to understand the site plan from a dominantly visual standpoint, but most of the men understood it by the nature of their work and movements (haptically) throughout the built and natural landscape. Perception of roads, driveways, railroads, and paths were also very significant to all participants in their understanding of the overall site, as they often defined the limits of the place, and

the organization of circulation. The sources of their knowledge were widely distributed between haptic, visual, and historical means, and through family stories.

The needs and accommodation of livestock were prominent concerns to those interviewed. This seemed natural since the livestock represented their livelihood. The means by which animals were housed, fed, handled, or contained within the site were the focus of comments which referred to these haptic interactions. Family stories about memorable events with stock also played a significant role.

Of the strictly natural elements of the site, weather and seasonal change were perhaps of the greatest concern. All of the ranchers were farming their own hay and grain for feed, which influenced their overwhelmingly haptic concern for changes in the weather and season. In their work with cattle, however, they also described many seasonal shifts in routine, and some described moving their work indoors during the winter. The two participants who expressed the least concern with the weather were both women, however, the third woman in the study (the night lamber) revealed the greatest level of awareness of weather overall. Natural water sources were highly significant for all of the participants, except two of the women. A majority of the men's awareness of springs and creeks rested largely on water rights, which were occasionally challenged. The remainder of the men's concerns about water regarded keeping the plentiful supply under control and healthy.

Intricate perception of subtleties of topography was prominent in those participants who were involved with irrigation ditches, or with farming bench land. The majority of this perception was, of course, derived through the haptic system. Haptic sensitivity to the texture of the ground at different times of the year was also a common pattern throughout the study, generally more common in the men than the women. Wildlife became a concern among those who hunted or allowed others to hunt on their land, or who suffered losses because of rampant grazing competition or predators.

The ownership of land was understood primarily in terms of social and cultural knowledge, and family stories. It emerged as a prominent concern to those who had lost farmland in an earlier generation, or those who were faced with the decision to sell imminently. Most participants perceived their neighbors, the community, and the larger region in a wide variety of ways, the most prominent of which was by direct experience and interaction, and through historic knowledge. Historical knowledge of the larger agricultural region was particularly apparent among those who had been involved on livestock boards of various kinds.

CHAPTER 7

VISUAL LEARNING OF PLACE

I can remember a photograph of my brother...as a little boy standing in the wheat. It was 18" taller than him. It was wonderful land.

Introduction

Rural residents in this study reflected highly integrated senses which shaped their perception and understanding of place. The way in which they apprehended their environment was holistic, combining primarily haptic knowledge with visual and other sensibilities. Their perceptions were accompanied by very strong schema of shared knowledge and previous experiences of the place, which were essential to their understanding of it. Perceptual stimuli were understood within a larger framework of cultural knowledge and memory.

Complex relationships existed between sets of elements which were perceived in multiple and interdependent ways. Although the perceptual patterns observed were overlapping, for the purposes of clarity the analysis is divided into four chapters. The roles of visual perception are discussed in this chapter. Haptic perception and the role of experience are discussed in Chapter 8. The ways in which social and cultural knowledge, and memories of events contribute to understanding of place are presented in Chapter 9. Lastly, the way in which place identity is linked to self identity is explored in Chapter 10.

Use of visual perception in this study was far more limited than anticipated. Visual skills were often a form of verification of elements or conditions that were largely

understood from other sources of knowledge. Those who gave a site tour as a part of their interview tended to express slightly more visual knowledge than others. The women, as a group, also made substantial use of visual knowledge in explaining their understanding of the place, especially with regard to site plan relationships.

Like Another Place

When a ranch was deemed similar to another place, the comparison was often visually made. Visual assessments of other places, however, were usually based on haptic means of interpreting what was seen. In other words, visible physical attributes of a place suggested certain ways of working and operating that the observer could relate to:

> A lot of these farms were set up like this, right at the base of the foothills, so that they had sub-irrigated, and also some dry hills to farm. Because it's usually too wet down here to do too much farming in that. All the way down this road, they're all the same kind, with the valley and the foothills.

> I [worked] up in British Columbia for a year, and some of the places up there were a little more primitive than this, but it did remind me of this because they were the same thing, they had nice fertile valleys, and most of the places were set off to the side of them. And they had some hillsides to pasture on and bottom ground too.

Most participants considered their own place similar only to other nearby ranches in the valley. This was not due to a lack of travel, as at least four participants had traveled extensively. Only one participant felt that his place could be compared to a number of other places, and coincidentally, he had his land up for sale:

> There have been a lot of places we've seen that are not too much different. There's places back there in Wisconsin that...except that the hills are not high...they're just a lot like here.

> Have you ever been in the Shanandoah Valley? That looks a lot like this, it really does. It's got more trees than we have probably, but it's just a lot like this valley. You know, the mountains aren't as high.

> I was in Calgary a couple of years ago. I think you can find land up there that's very similar to this.

Generally, visual comparisons with nearby ranches were expressed as a sense of

belonging within the region. Individual places were perceived as part of a larger agricultural community.

Family Photographs as Record

Photographs were an important source of visual knowledge about the settings. They were sometimes sought out in advance of the interview, and were used as visual aids. They supported and clarified memories about earlier buildings or events, and triggered discussion on forgotten structures or experiences. When the photographs pre-dated the individual, they served to formulate visual knowledge of ranch history, or to illustrate events known through the telling of family stories.

Placement or character of buildings and other elements on the site was visually confirmed by photographic images. They reinforced the individual's historical view of the site by becoming a link between their own visual knowledge, their historical knowledge, and their recollection of family stories:

> In this one picture there's this old log barn, I don't know, I'll have to ask my mother about what that is, but this slaughter house sat right where that building is, and then this ice house was right up here in the corner of the driveway, and then this old log building back here evidently must have sat pretty much where the other end of this barn was, and then this bunkhouse was right at the other end where the clinic is now.
>
> But the doors on this end, they're similar to what they were originally. Because I've seen pictures of it when it was first built.

Photographs also served as a visual triggers for relating memories of specific events and ways of working that were either experienced directly or known through family stories and collective memory:

> My father did a lot of irrigating. I can remember a photograph of my brother... as a little boy standing in the wheat. It was 18" taller than him. It was wonderful land. He got at least 3 crops of hay off the fields.
>
> Now this was dad (loading sled with team in harness), and this was one of those winters when things were bad and he'd gone to the elevator to get salt and grain.

> This is an overshot [stacker] here. You put the hay on here and the team pulls it and it shoots the hay up, and flops it over upside down. We had what we call a J Hawk loader... Probably in the early '40s late '30s we used that. We put up lose hay until I was...in Junior High, before we finally quit and started putting it in bales. So we used teams a long time.

Views

Concern for views among the individuals studied was remarkably limited. It is an important topic for this analysis mainly *because* it was significantly missing from the interviews. A couple of participants who mentioned views seemed mostly concerned with being able to see their own pastures or crop land:

> ...right there in front of the house, you've got a view across the pastures...

> ...you can see the whole valley. You can get up there, it used to be, and they didn't have all these houses, and you could see what everybody was doing. And we farmed all this ground for all the neighbors.

The nearby mountains as a source of visual pleasure were mentioned only four times throughout all the interviews. The lack of emphasis on the visual importance of the open landscape seems surprising in a wide open, rural setting. The two quotes above suggest, however, that pleasure was derived less from a strictly visual esthetic, and more from the satisfaction of seeing that their livestock were healthy and their work in the fields was getting done. This topic is discussed in Chapter 8.

The Looks of Buildings

Characteristics of buildings were understood in various ways. Dominantly visual assessments dealt with overall building form, the integrity of structure, and building materials. At each site the original, modest dwellings and bunkhouses had been added onto and changed multiple times, to serve the needs of large families. Those interviewed perceived and described their dwelling in terms of this accretion of growth in the form and massing. Some impressions were based on older photographs or family stories, rather

than on the experience of witnessing or participating in the changes, but they resulted in highly visual images: "This house, I think my mother says it's been added onto 7 times. It's kind of stair stepped out here. You can see where the porch was..." Although impressions of how many additions had been done varied, the perception of an additive form was invariant.

Roof forms were also recognized as distinguishing visual elements of buildings, and helped to define the building character overall: "...the old barn...it was an old hip roof barn. You can't see the one on the neighbor's place down there. It's a big hip roofed red barn. It was just like that one." Often, visual understanding of roof form was accompanied by a sense of structural integrity, which connected the visual perception to a haptic one dealing with maintenance:

> It's a good steep roof, so it doesn't have to hold a lot.
>
> I thought it looked a lot better with a flat roof than this. But this damn thing got to leaking...

Integrity of building structure was considered and judged by visual means. This was often the case when the condition had deteriorated to an obvious degree, by losing its roof in the wind, or leaning over, for example. More subtle assessments were also made by careful observation, or by connecting memorable events with damage:

> Well, we just put a new roof on it. It's sagging pretty bad -- it wasn't built stout enough for that heavy a roof. They used 2x4 uprights instead of 2x6s and it spread out on us.
>
> This has been through a couple of earthquakes and we got a couple of cracks showed up inside here, but it's a sturdy building.
>
> My sister hit the front end of the garage coming in a little too fast one day, and it sprung the building, and it's still that way (laughing).

Ingenuity of construction was noted in close examination of the design and construction of a wooden slaughter wheel, which was saved as a relic when the slaughterhouse was torn down at one site: "It seems like quite a work of art to me, I don't know how in the

world you'd think about building something like that. They cut all those (curved) boards at an angle like that too, and laminated them together."

Building materials were often noted, because of the way in which buildings were identified or visually distinguished from others by the exterior siding or roof material. Color, however, did not emerge as a very significant factor in this group's assessment of the looks of buildings. It appeared to be often an incidental outcome of the construction material used. At one farmstead site, where there appeared to be great care taken over the coordination of roof and siding colors on four of the most prominent buildings, the rancher was asked how such decisions were made. He implied that these were personal family matters: "Well, generally man and wife...that's..." The varied scale of buildings also did not figure significantly in visual terms, despite the wide variety of scales found on the sites.

Building & Land Relationships

Relationships between the topography and the buildings were noted when there was an unusual or distinct character to the way in which the building sat in relation to the ground plane:

> The house was built into the hillside.
>
> ...the other [earth bermed farrowing barn] was settled into that hillside right behind that shed. There are still remnants in that hill of the lower one there, because I've seen that.
>
> They remodeled it. They raised it up and made a basement about two feet below ground.

However, very subtle relationships were also observed. This was often a sensibility based on an understanding of how well the land drained moisture away from the building -- sometimes more haptic than visual in nature:

> The granary was here on this piece of ground because it was accessible and up high enough that it wasn't going to get wet.

General spatial relationships between the buildings and the larger land holding were also observed in a visual way at each of the three sites:

> The buildings are fairly centrally located on the land.
>
> It's on the center edge I guess.
>
> I think at the time it was [built] there, they built it there because it was in the center of the property.

Edges & Limits

The boundaries of land holdings were sometimes defined by relatively fixed elements, such as groves of trees, roads, railroads, or rivers. Some edges were perceived as more permeable barriers than others. Less permeable edges, which placed limits on mobility, are discussed in Chapter 8. Often the separation between neighboring land holdings was the flimsy and highly transparent barbed wire fence.

The fence, though movable and almost invisible at a distance, was often an absolute separation between a familiar world and a little known one. Other, more visible elements were often referred to, however, in locating the edge of a land holding:

> That haystack there is the fence line there. That belongs to the neighbors.
>
> The property runs another half mile to the west here, and we have a drain ditch on the back side of that.
>
> That grove of trees back in there that's part of the ranch. Just beyond that grove is the west edge.
>
> You can see that big pile of poles down there. That is the line between the river ranch and...well part of it is between our ranch and T's ranch.

Although fences physically kept stock in or out, they also had a larger role. They represented to ranchers the invisible boundaries of property ownership and inscribed section lines of the General Land Survey from 1868.

Wildlife

Visual perception of wildlife was based partly on its potential as game, but also on its competition with livestock for grazing, or at times its physical treat to domestic stock:

> Those areas that we saved, that we didn't plan to use at all, you'll find the Elk wintering there. So you've kind of lost the effect of what you're trying to do. When we moved our cattle out last fall in December, we left about 125 head of Elk behind. So you see what that can do. We can only run 200 cows and calves. And then you're going to winter 125 head of Elk.
>
> When I was nine or ten years old I'd never see a coyote. Now they're around here all the time. We have to be a lot more careful what we do with the livestock (lambs).

Vegetation

Ranchers exhibited a highly developed visual sensibility for the condition of their crops. At a distance they easily determined the type of grain crop in a neighbor's field, and were able to judge whether it was any good. Readiness for cutting of hay was determined by its height, and for combining by the color of the seed head. Damage to a ripe grain field that had suffered from rain and wind was observed with a measure of tolerance. Weeds were discerned and identified at a considerable distance. Many stray grasses in the grain crop or pastures were identified by name, and it was well understood which ones were useful, and which were not:

> And then we have a plant here that is highly recommended by the Experiment Station...Reid's Canary Grass. It'll grow to a height of -- on our ground -- 6 to 7 feet. But once it gets a stem on it, why the cattle won't hardly eat it. You can use it for a shed instead of for feed. We wish we'd never seen it, yep.
>
> Because we're right on the river, on wet years we get a lot of weeds. The seeds wash down from the "M" in the Bridgers. There is a tremendous amount of leafy spurge up there, and when our fields get flooded...it starts growing here.

Quick assessments of the nature and condition of crops was characteristic of those who gave a site tour as a part of their interview. Ranchers were also well aware of the more

productive and less productive areas in their fields. When an area consistently produced well or alternatively, did not grow well for some reason, it was noted:

> There was a little 5, 6 acre patch down there, but there was really good grazing right on the railroad right of way there.
>
> This range here didn't start growing 'till late. I don't know what there is about this little area of ground here.

Conclusion

In some cases, visual acuity of the participants was highly developed, especially with regard to details of vegetation. The development of this skill is consistent with Gibson's (1966) "differentiation theory," which suggests that attention to nuances is evolved through learning. Visual attention to the growth and condition of vegetation is consistent with the findings of the historical investigation in Chapter 4. Both the surveyors and subsequent settlers assessed the quality of local soils by interpreting visible evidence of its produce. All aspects of visual perception in the study of contemporary ranchers, however, were integrated and interpreted with multiple sources of knowledge. Family photographs served as important visual triggers for memory of significant events, crops, livestock, or buildings. In general, visual learning was a form of verification of knowledge that was understood from other sources of perception and learning. Visual esthetics alone were of little significance, except when they were considered indicators of rigorous and disciplined management of the ranch as a whole. This factor seemed most important to those interviewed at the largest ranch.

CHAPTER 8

HAPTIC PERCEPTION OF PLACE

It's pretty bad sometimes when you're outside feeding, or you have to go check something...with the snow, and the wind blowing, and the mud this deep...it gets pretty bad.

Introduction

The perceptual capability most frequently relied upon in the study was haptic in nature. This system of perception and learning involves the integration of many senses, such as touch, balance, sound, movement, and the memory of previous experiences. There are multiple sources of sensibility distributed throughout the body. It is an inherently spatial form of perception, which accounts for the movement and effort of the body through space. The haptic system combines somatic and kinesthetic sensibilities with tactile and positional awareness, and a variety of others, forming an integrated perceptual system. Total haptic involvement is captured in one rancher's recollections of farming as a boy:

> At that time we didn't have swathers, we had to cut everything with a tractor mower, and I'd take my shirt off...I never wore a shirt all summer long, and I'd get a tremendous tan. I liked the mowing the best, because you could put the mower into 5th or 6th gear (smiling, excited) and it was really a thrill, you know, because you had to pay attention, and you'd just be flying around, and you'd get to the end of the field, and you hit the lever and you shoot the bar up and make a spin, and the old tractor would be almost up on 2 wheels, and you'd line it up head down there, and there was always a challenge to see if you could get that lined up going that fast, just because if you put it down too soon it would catch in the hay that was already on the ground, and get plugged up, and then you'd be down there pulling it out by hand.

Recalling the tendency of early settlers to rely on their experiences on the land (Chapter

4), in this study also, the apprehension of the environment was clearly based more on physical experience than on visual spatial perception.

Working Livestock

A very large proportion of the attention of the ranchers studied was placed on their livestock because the animals represented their livelihood. Their comments about stock in the interviews referred to working, moving, feeding, or housing the livestock. Their perceptions and experiences, based on physical labor, were haptic. Family stories about incidents with stock usually described haptic experiences with them.

Doing work with stock often involved bodily engagement and contact with the animals. The nature of this work with sheep and cattle varied, and included giving shots, worming, sorting, milking, calving, branding, castrating, ear tagging, shearing, docking tails, lambing, and doctoring. When horses were used in the management of other stock, this work included an additional range of activities such as halter breaking, training, shoeing, grooming, harnessing, driving, and riding. Most of this kind of work involved full engagement of the body in close contact with that of the animal. It also demanded a level of understanding of the behavior of the animal, and degree of trust. All participants tended to describe the working of stock far more frequently than the feeding, housing or moving of animals.

> In the fall of the year when we first moved here, why if some of the milk cows were going dry -- when you wean the calves -- why, if a range cow had a good looking bag on her yet, why, you put her in and milked her too. You always took your lariat rope and a club when you went to milk the cow, and by the time you got through you didn't have much milk, but you had a lot of experience.

> When we started the colts, we'd walk them down the road to halter break them, before the kids would start to ride them. We'd walk them all the way down to W's...each one of them, one at a time. That was a lot of walking!

> M is the sheep herder...he goes out there with a sheep hook, or with a rope, and tries to get them in before they have the baby. ...I don't really need that much sport with my sheep. A lot of times I let her have her baby... And so then it's sometimes

> easier, if you have the baby, to get the mother to come in. Because you kind of drag the baby along and she follows. That's the plan, it doesn't always work that way.

Even when such work was extremely physically demanding, or sometimes threatening, it was reflected upon with tolerance, humor, or even fondness.

Livestock required frequent rotation from one pasture to another, from pasture to shed or corral, or from corral to stock trailer. This activity necessitated familiarity with how stock naturally tend to move. It was a highly spatial skill, demanding an understanding of what the animals will move toward, and what they will tend to move away from:

> I'd just jump on him bareback...and I 'd run down there and run [the ponies] up to the corral at a full gallop. That was always more fun, because he was just like riding a rocking chair.
>
> Their working corrals for the cattle were poorly designed, and it was hard to get cattle to go through it. ...All it did was make for thousands of ornery cattle to work (laughing) to where if somebody would have just built the corrals that would handle cattle more naturally, that would have saved all the years of frustration... It was just the layout didn't adapt to the way cattle approach a gate, so everything was always a work to get them through a gate and into the next part.
>
> I've got a picture of my dad riding a bull here, he would ride it to the sale. Oh, yeah, he just rode it right up [the road] to the sale!

The physical logistics of moving cattle were perceived to have changed over time:

> We used to drive our cattle from Livingston to here through the Bridgers. It took only 2 men for 200 cattle, it took 4 days the first time.
>
> Working the stock east of the road any more the time of day makes a difference as to how much traffic we have, and we try to avoid too many people on the road. We try to avoid accidents as much as we can. You can't slow some people dawn unless you ride out there in front of them and make them stop. They'll just keep barreling through unless...if there's a hole there [in the cattle herd], why they'll try to hit it.

The daily labor of feeding stock was something which occurred with such regularity that is was almost not considered work, but a part of the environment that was often approached with quiet pleasure:

> The reason I use the team is that it's probably the most enjoyable part of the day in a way really, going out with the team and feeding that way. There's no noise of

> the engines or...it's just total quiet. It's real peaceful that way. It doesn't matter where I go on the place, it's ...you're just skimming along [with the sled], and nobody else is even up, and you've just pretty well got the whole thing.
>
> January is the only month we're not doing any cow work...Well, just feeding, and you can't hardly call that work. We're feeding about 11 or 12 tons a day in winter, mostly with round bales. It's about 8 to 11a.m. before you get done feeding.

Providing shelter or containment for animals required labor to construct and maintain buildings. This topic is covered in more detail below (see "Construction and Maintenance" below). As people worked closely with stock, day and night, during calving or lambing season, protection from the elements was provided by buildings which sometimes were only used for that brief season. Shelter, warmth, dryness, and light became priorities for the well-being of both people and animals:

> You don't bring them in until you shear them. Then once you shear them then you've got to keep them in. ...
>
> I strip my coat off...even at night, yeah. With all those sheep packed in there, they put off a lot of heat! They are very warm.

Keeping these contained spaces clean, of course, added another task to daily routines:

> There was always a certain amount of maintenance and chores with the horses.
>
> That was a major project every spring, because the manure would be about [18"] deep in there. And of course, we cleaned it all by hand, my older brother and I, we were like 10, 12 years old, hell it seemed to me like we was shoveling manure forever, but it was like about 3 weeks straight. And I don't mean for an hour a day either.

Understanding the behavior and needs of livestock was a critical part of the livelihood of the people involved in this study. Managing animals was central to managing the life and work on the ranch, and in fact it defined them as ranchers: "We call it ranch rather than a farm because we have cattle. People who just stir the dirt are farmers." The dynamics of physical work with stock gave people a sense of space and movement at large and small scales in their working environment. It helped to define the overall character of each place, and specific incidents colored this perception.

Constructing and Maintaining

Construction of new buildings or additions was a relatively frequent occurrence in the history of the farmsteads. As needs shifted by changes in the type of stock raising, increases in the volume of stock, or the size of machinery, new sheltered space was required from time to time. Awareness of exact construction details, condition, and structural soundness was cultivated by being directly involved in construction, renovation, or maintenance of buildings and fences. While there was certainly a visual component to this, the most frequently expressed perceptions were based on the physical actions of building, rebuilding, repairing, roofing, or tearing down structures:

> ...the cinder block barn. Well, dad and I built it. But when we got it done, we had something really nice to use, and we really enjoyed it. It was super when we built it. That barn has got a hardwood tongue-in-groove hay mow in it. We've had dances in the top of that thing. It's completely sealed, you don't have no dust coming down through it or nothing.
>
> Maintenance on the ranch...that's a never ending thing. As a building deteriorates, you either remove it or fix it.
>
> There's wood posts in it now, clear through it. And there used to be 6x6s but they weren't buried in the ground. So when we cleaned the place out...there were gaps under the posts where the ends had rotted away. ...We replaced all the posts inside. We took out every other one, so I reinforced [the beams] and replaced them with set posts that go down about 3 feet.

Sometimes hard lessons about construction or design were learned by trial and error:

> Now this little lean-to shed on this side, you'll see a post or two there. I had it to where it was twice as deep, and the front half got caught in a windstorm. Well, that wind came up, and it blew the roof...clear across the road. ...The way you're supposed to build a building like that...you leave a hole in the back, so that the wind blows through. But I wanted it tight on the back, so that when we had a storm out of the north, it wouldn't blow the snow in. So I made it tight, and lost it.

Through being involved in the construction of some buildings, people expressed heightened observation of construction methods that had been used in others. Their visual attention was focused by their haptic experience:

> Originally there was a great big straw shed there. It had posts about that big, a post frame just like a corral, and it had an inside and an outside, and the fence was

> about that far apart, and it was all woven wire. And it had lose straw in the walls all the way around it, and the ceiling was the same way. And it had posts in the center to hold it up...it was a straw shed is what it was. I suppose they didn't have materials, and it was warm. The walls were [18" thick]. But like, today if you were going to do the same thing you'd stick bales in there, it would be simple. But it wasn't done that way, it was all done with loose straw.
>
> We never had foundations under anything in those days -- there was no such thing!

Childhood play also afforded an opportunity to understand the texture and materials of buildings, because of the tactile nature of play:

> I can remember growing up, J and I, and the sparrows always nested in [the straw shed] -- in the ceiling of it, everywhere. So that was a great deal for us when we had time, we'd go out there and rob them sparrow nests, you know. We was always reaching up in there and, you know, a lot of times we couldn't reach them, so we'd stand on top of each other's shoulders, you know to reach those damn nests.

Working Fence

Fence work required expansive, wide ranging movement over the landscape. The larger the land holding of a ranch, generally the more significant fences became. They simply took up a larger proportion of time and energy in maintenance. The largest place studied was divided into numerous smaller pastures for rotational grazing, and hence had vast lengths of fence to maintain:

> It takes a lot of maintenance because there are lots of little fields, and therefore a lot of fences to maintain.
>
> We spend a lot of time fixing fence in June. Once we've got cows on the grass we have time for that. About the time you get done fencing it's time to gather calves.

The job of fence maintenance was considered by one rancher as one of the most enjoyable parts of his work: "I just love to go back over there. It was time well spent, working fence. I suppose it's the solitude as much as anything else that draws you to it."

Except when they indicated boundaries, fences were considered movable structures, although they were rarely shifted to a large degree. They were built and re-

built numerous times during the career of each rancher, often because of changing needs or perceptions, but the basic configurations were retained:

> There were some old pens here, basically not too much different form what we have now. Except they've been re-built several times.
>
> There were fences here when dad came...we fixed some, but actually a lot of the old corrals and pens that dad made early on we've torn down and changed the configuration, moved fences. I suppose it's mostly due to the size of a truck.
>
> When we came here there was a fence nailed onto the trees all the way down here...and I don't know who put that there, but we went and took it off the trees, and put the fence back over here. ...It wasn't a very good fence.

The use of electric fences introduced a highly flexible concept of containment, and has perhaps shifted the understanding of the fence as a relatively permanent configuration:

> We use a lot of electric fences because they're flexible and easy to move around.
>
> We don't use these pastures along the creek. Some of them we have fenced out with electric fences. Some are fenced with permanent fences.
>
> Here's one of the areas he has fenced off, and it's just been re-seeded... I think we can probably take that fence down in a year or so.
>
> We've been storing roll fence that we put up every year around our second cutting hay stacks to keep the deer from...eating part of it and fouling up the rest. ...Every time you get two inches of snow, why, unless you have a fence, boy, the deer will start eating on it.

Braving Weather

A natural outcome of dealing with livestock and crops was seasonal change in labor and activity. According to the interviews, these changes were always anticipated well in advance, and often motivated the completion of work: "As seasons change, having the season's work done before the next season gets there is always a challenge." Variations in precipitation and temperature tended to naturally shift the emphasis of daily work. Most participants expressed their haptic perceptions of the cold weather, but they generally accepted it as a season with its own merits, rather than as a disadvantage to their work: "A winter morning that's clear and cold...this country is never nicer. You

know if you've got fresh snow and...it's pretty nice." Ranchers expressed their willingness to adapt their activity to the daily and seasonal conditions presented by the weather, with a sense of total acceptance:

> Everything's so dependent on the weather...you don't know what you'll do each day until you get up in the morning and see it.
>
> As seasons change, you change how you're doing things.
>
> I do know people who are actually military...their life's all regimented, and they turn out to be very frustrated farmers around here. So, yeah I definitely think you have to be flexible.

Adequate shelter for the work at hand was readily found by moving livestock or machinery inside:

> There's a lot of really cold days...pretty cold. With all those sheep packed in there, they put off a lot of heat. They are very warm. And I don't often get real cold when I'm lambing, when I'm in the shed. You have to keep warm. And then at night, one nice thing is all the sheep are in either the shed or the tent...and it's all enclosed and warm in there.
>
> On rainy days we'd hold the classes inside the of the old barn. We'd have cookie races from one end of the barn to the other.
>
> The shop is used for general maintenance, half of it is heated, and you can work dressed warm, but with no gloves on.
>
> You can close those doors there and heat this. And then we use this to warm calves up in the wintertime if they look chilled down...during the calving season.

There were some times of the year or unusual years when conditions made it difficult to get work done, which caused a level of frustration or anxiety:

> The only bind is in summer time when I get ancy about having to stay in here in the afternoons, when I know I should be over there baling, because I know if I don't it's going to be raining tomorrow, and it gets real tense at times. But it seems like we have 3 day windows of good weather, and then it's raining. And so it really makes you scamper.
>
> That hay has been down...we were going to bail it today, but now it won't be until the day after tomorrow probably. It wasn't quite dry enough yesterday. It hasn't been down long, but in warm weather and steady rain it deteriorates very rapidly.
>
> Oh, it's been a tough summer on farmers and ranchers, I'll tell you.
>
> We've got hay that's being rained on now for the third time.

> Last year we started out the winter with about the same amount of hay as we usually use, and by the time we got through we had to buy 100 tons.

Some of those interviewed expressed a highly tactile sense of the snow or extreme conditions, which reflected the intimacy of their experiences with it:

> These roads, when we were growing up they would drift shut. Hell, nobody could get through for weeks at a time. I remember when dad would take us in with a team and sled... We were lucky, we had a good team. But we had a lot of neighbors that didn't have any. Yeah, a lot of times it was drifted so hard [the horses] could get up on top of it, and take a bob sled, and it would slide right along.

> Then you'll get that wind started out of the east, and it'll blow for days...it's a nightmare. We were calving here last year in this lot. We had calves that were a couple of days old, that froze their feet. It wasn't wet or anything. It got down near 20 below and that east wind blew.

> It's pretty bad sometimes when you're outside feeding, or you have to go check something...with the snow, and the wind blowing, and the mud this deep...it gets pretty bad.

Changes in the physical environment because of extreme snowfall sometimes transformed perceived spatial dimensions of the surroundings:

> The snow was drifted so you couldn't see the top of the milk house, and it was drifted clear to the house, and we had a path shoveled from the door of J's house to the milk house, so that we could go milk, and we didn't see out for, I'll bet a month and a half, the snow was so high. ...I'll bet it was 12 feet high right there in the driveway. You couldn't open any gates... All we did was shovel. We didn't have a tractor and a loader. You couldn't have gone anywhere if you did! It was tough.

> ...you couldn't see any fence posts, it would be drifted plumb across -- you couldn't even see the road. And we'd take the team, and he'd take us to town, and we'd stay up at granddad's to go to school, until they'd get a snowplow to clear the road. Sometimes it would be two weeks before we'd get home.

In general, seasons and conditions were accepted as they came, and work was adapted to suit them. In spite of its threats and damages, the weather was viewed as a necessary part of the cycles of farming and stock raising, and a system which generally supported those activities:

> Life just went on day after day -- it didn't matter what time of the year it was.

> I enjoy being outside. I guess whatever time of year I'm in is my favorite time of the year (laughing).

Walking the Ground

The ranchers in this study expressed a detailed knowledge of the topography and ground conditions of their places. They understood and remembered subtle high or low spots in their hay fields, and knew exactly where and when they would find a boggy patch in their pasture. This knowledge was gained, again, from the experiences of physical work. They traveled the ground of their pastures and hay fields seasonally and thoroughly. Those who did not engage in the activities of farming or irrigating (primarily the women) reflected minimal awareness of these details. How people chose to get around was a matter of convenience:

> We still always use horses when working with the cattle, it's much easier to get around with all the creek crossings. A pickup or a 4 wheeler doesn't make sense.
>
> You do a lot of work afoot.
>
> I had a half Arab gelding I kept at the end of the barn all the time, because down in this pasture was too wet to drive down to where [the ponies] were at, so I'd just jump on him bareback...and I 'd run down there and run them up.

The mode of travel that was used to move about the landscape affected the nature or detail of perceptions:

> We've got one [gate] where I go into a neighbor's to adjust the headgate for my water. Part of that, except for where our headgate is, on the neighbor's is unfamiliar...I don't really know much about the low spots or the high spots or much about any of that except for what I have been over on foot.
>
> I'd always explore up and down the irrigation ditches if they were dry, I had lots of childhood fantasy games. When the irrigating was done, and before the ditches were plowed back in they were fun paths, and the grain or the hay was generally tall enough for a little kid walking down the ditch, so Mom can't see you from the house, it was convenient. ... I'd be out of sight.
>
> The high water table all the way through here would make boggy spots. I can remember the neighbor that used to furnish some cows and calves for the wild cow milking and the calf roping....Why, they got the truck stuck in the road...right in the middle of the road. But even the road grader would get stuck in the road here.
>
> If you have ever run a mowing machine or a swather, why you'll cuss those gophers every time you run into one of those holes.

Ranchers were highly sensitive to the quality and texture of the ground. A large part of this was a necessary awareness of the moisture content in the soil, and its capability to produce well: "I put in the garden, in a real good piece of ground. Deep soil...the dirt is about two to three feet deep right there." They revealed a critical awareness of local conditions, and a tendency to engineer land and water to maximize production:

> ..that's all that ever grew here until we got water on it. Just back there would be the native sod...so you can see there wasn't much growing there. It was nothing but rock. This corner, it was about a 4 or 5 acre field, that nobody ever plowed before we started farming. Too dry. But it produces something if it gets water on it and you get alfalfa seeded in it.
>
> It was so swampy. We added a couple of drain ditches in the back pasture.
>
> We have a different schedule than people who live on dry land. This year is different, but last year we had only one inch of rain in June.

Sometimes their sensibility to the ground texture was perceived from the conditions that the animals experienced -- a sympathetic haptic sense:

> Because as we keep adding gravel [outside the barn] to keep the cattle out of the mud, (laughing) our windows get lower all the time, and the cows are sticking their noses through.
>
> We have a drain ditch on the back side of that. That's what makes it as productive as it is -- it used to be just slough grass, and the water would come up on it in the fall of the year, and the only place a cow could lay down was on a high spot or something.
>
> I started driving that colt...I've got this buggy here with the skis on it...and I took him out in the field there, and it was hard enough he could run on top of the snow. We went all the way down and around in the swamp and everything and the skis were just skimming along on the snow...it was really slick. I usually like to hook them to that 'cause it seems like the wheels on the gravel can spook them to begin with, but on the snow they don't seem to startle as much.

An understanding of which parts of the land had good, productive, sub-irrigated soils was gained by years of farming the same fields:

> I guess I really like it because the ground is so fertile. And you don't have the rocks to fight. ...and you've always got plenty of moisture...
>
> The farm land is all...further over on the other side is all deep soils...very few rocks...produces very well.

> A lot of these farms were set up like this, right at the base of the foothills, so that they had sub-irrigated [pasture], and also some dry hills to farm. Because it's usually too wet down here to do too much farming in that.

Topographical nuances were well understood by those working the land. The subtle undulations of topography were made apparent to them as they traversed the ground, or as the tractor tilted slightly. The flow of irrigation water was a major factor in understanding topography at the site which utilized gravity-fed irrigation ditches:

> Those ditches are generally on the high spots...that's the theory.
>
> The ditches are too close, and I think in general they said, "well water runs this way so we'll dig this way, and have all these spur ditches come off to water it." Well... you go through a low spot and up. Without leveeing that ditch it doesn't carry the water uphill very well.

The topography of farm ground was managed for efficiency of irrigation. This involved sometimes large scale manipulation:

> Every seven years we level them, to try to fill in where the ditches have been, and knock the high tops down. For instance, out here... in my lifetime I can remember that field being leveled...probably 5 times. We have a land leveling machine that you pull with the tractor... it's just part of summer fallow operations.
>
> I guess if it was economical, what we'd do is go in and plow it up and level it and put the ditches in where they were supposed to be.
>
> I've been trying to get this [old railroad right of way] smoothed up. We've been smoothing on this for probably -- now let's see, they took the railroad right of way out in '62, '63 something like that -- and then we had it leveled off with a big cat...just pushed it...filled the ditches, because there was ditches either side.

High and low areas were particularly noticed and remembered after flood years, when many places suffered losses to building or farm land:

> There are a couple of bridges in a row, and between the two there is what we call the "hay meadow," it's an island, and it's one of the first places that floods when the water's high.
>
> They built it there because...it was a place that wasn't going to flood, they've never had any flood problems there.

At one of the ranches studied, the two adult men who farmed there had an intimate knowledge of the topography of all the nearby hills. They had spent years of

their youth training colts and riding them into the hills on a daily basis. Childhood play was a significant source of knowledge about topography:

> We went up every one of these draws every night.
>
> We did things on the hill...coasting...sledding you'd call it. Across the road there was hill to right that was sloping, and a hill to the left that was steeper. Yet over the hill to the north, there was a hill with an irrigation ditch at the bottom.
>
> When you look up the hill from the house, there was an old cherry tree up there, and an apple orchard. I would go up there on my pony to pick cherries, and that was the most wonderful place. There were fifteen to twenty trees in there. I loved to go there on my pony.
>
> This is kind of high ground on this place -- just this spot right here (about 3 foot rise). It's the only hill our kids had to sled on was the highway or else this little hill.

Using Water

Rivers and creeks were always considered an important asset by the ranchers interviewed, just as they had been critical to the early establishment of homesteads (Chapter 4). While there was a chance of flooding in the spring, that risk was far out-weighed by the advantages of sub-irrigation provided by low land farming, or a plentiful water supply from early water rights. Each of the sites studied had two creeks crossing through the land, and two sites were also adjacent to a river. Most participants expressed an awareness of these water sources from the standpoint of using the water in their work, traversing it, or playing in it.

Creeks which crossed through ranch land presented an obstacle for the movement of cattle, people, and vehicles which was managed in various ways. Some ranchers had built bridges or crossings, some chose to get about on horseback, and some moved their buildings so that they did not have to cross the creek so often:

> We have a culvert upstream a ways...and this bridge...and then we've graveled the approaches.
>
> ..it just works better horseback...crossing creeks is easier than with a pickup.

> Where the buildings used to sit they had to drive along the creek, over the railroad right-of-way, through the neighbor's property, through some kind of spongy [ground], where the river made a kind of creek gorge they would be under water. I think it was probably a real challenge to get to the house at a bitter time of the year.

The use of irrigation water from creeks was a part of surviving as a ranch, and still involved an investment of energy in the engineering and operating of a distribution system, just as it had done for the early farms in the valley (Chapter 4), although sometimes technology had changed the nature of this work:

> We aren't lacking for irrigation. We'll irrigate depending on the price of hay. But if hay is low it's not worth it for us to buy the diesel fuel it takes to run the equipment.
>
> It's a sub-irrigated ranch. The water comes from the M Creek area, and T Creek. We'll back up a drain ditch or pump water for the hay or grain, but the water table is high enough on most of the land that it doesn't need irrigating.
>
> In the summertime we get up and irrigate, and change water. We have a pretty low-tech method of irrigation...it's just a shovel and a dam. That's the way the place was irrigated when they first homesteaded.
>
> There's a ditch there that comes out of the creek up there, and he irrigates...usually it's just over here and that pasture from the same place, and then those other pastures are all irrigated too.

Domestic uses of surface water were extensive before electricity was available to pump well water. These uses varied from early running water to refrigeration. When piped running water was available it was vividly recalled because of its perceived rarity, and because of the labor it saved. None of these perceptions were expressed by the youngest generation of ranchers, however:

> A creek came down on the north side of the slaughterhouse, and came right down under the building. It was just used for cleaning I suppose.
>
> So this large barn here...in about 1921 I think....even had a water system in it, which was unusual for the time. It had a water wheel that generated electricity that produced 36 volts of electricity, and that was enough to fill a tank in the top of the barn. They didn't have water in the house, which wasn't unusual in that time.
>
> We lived for the first three months without running water. We had to carry water from the main house to the small house.

Refrigeration was perceived as another early advantage of proximity to a fresh water source:

> The icehouse also stood up there, near the driveway. They used to go to the river to cut ice, and they'd store it in there, with sawdust between the blocks. People would come by there to buy it from them.
>
> And then there's what they called a spring house. That's where we used to keep the milk and cream. We'd have to carry it from the barn here, clear down there.

Childhood memories played an important role in the haptic perception of creeks. Children seemed to appreciate water as they did topography, in a highly tactile and physically engaging way:

> ...a fishing hole about 100 feet from the barn. As a kid that was my favorite place.
>
> I liked to spend my time right at the main buildings...where the kids played at the old swimming hole. They spent all their time there.
>
> We used to float the canals all the time. We'd ask mom if she'd pick us up at the next road down or the one after that after a certain amount of time, or we'd walk back, but the best thing was to see if mom could pick us up. Yeah, we floated.
>
> There used to be a place where everybody swam in that old cement foundation. And we'd go fishing in there, and fish clear down to the East Gallatin, and then down the river.
>
> There's a fairly deep hole right in there. Then the kids used to take their inner tubes and go around the loop. ...the creek meanders around and makes a big loop. You can portage across and then float clear around and back down, and portage across and float around again, as many times as you want.

Because of their extensive involvement with creeks, ranchers had a heightened awareness of them, and understood the larger configuration of them well beyond the boundaries of their own land holding. They knew the source of each creek, and how long it was by the time it reached their land: "C Creek comes from up there where that saddle is on our mountain. You can ride right up there, and that whole creek comes right out the side of the mountain all in one blast." The wider cultural aspects of this shared knowledge is discussed further in Chapter 9.

Cognitive Mapping

Individuals in this study shared a very clear understanding of the overall site plan of their ranches. Perceptions about site plan configuration were overwhelmingly haptic in nature. Their understanding was derived from their own movements between buildings, corrals, and pastures in the course of their work. Each person on their own came to a generally shared understanding of why certain buildings stood where they did, and why the pasture fences or corrals were laid out in a certain way in relationship to roads, creeks, trees, or hillsides. Most of them shared similar work, or participated in defined roles within an operation, and their individual experiences were a part of a larger system which they understood from the perspective of active participation.

Participants' knowledge of the overall placement of elements on the site was organized in a fundamentally spatial way, as a cognitive map. Many distinct parts of the environment were perceived simultaneously through "appositional perception" (Stea 1979, 111) and recognized as a whole, so that multiple relationships between parts were understood:

> The buildings are where everything starts.
>
> Things were more or less in a circle around the driveway.
>
> ...It's just a clutter of buildings.
>
> The working corral is behind the barn, and the pastures are close. The buildings are in fairly close proximity.

This perception of place was arrived at through all aspects of work and activity, so that the rationality of a pre-existing order made sense in terms that each person could understand. It was the convenience of proximity of buildings to each other and to the road that people most often noted:

> I would say that the buildings are all built in a close proximity around the driveway. And really the reason it was all like that originally...when we had the dairy, of course, we had to take all the milk stuff to the house to wash it.

> From the buildings the pastures where we have either the cattle or the sheep or sometimes both, all have access to the central buildings, where there's corrals and water.
>
> It was all pretty convenient. Things were located so it was easy to get things done, or to go from one building to the next to find the others or the kids. It was easy for them to find their way around.

At the farmstead where four early buildings were simultaneously moved to the site, however, there was a sense that the placement of buildings may have been somewhat arbitrary:

> I guess I'm a believer that things happen more by accident than by a plan, especially in farm settings.
>
> You never really know why the buildings are where they are, except most of the time they were put where it was convenient to use them for whatever purpose they were put there for.
>
> I guess it was just an easy place to move [the buildings] to because of the sheep shed, so that's why they set them up there.

In general, ranchers recognized and appreciated the wisdom of the early choices that were made about siting. Through their own experiences on the land, they appreciated the haptic sensibilities of the earliest settlers of the site, whom they realized must have based their choices on local experience. They felt that placement of the farmstead was based on timeless principles which continued to be important:

> ...it was built so that part [the working operation] was all close to the house. And part of that's because of the weather. And then it's built so that it will all drain, it's all... ... going to run right out, right down that driveway, way down to that corral, and keep going.

In addition to frequent new construction, existing buildings were often moved on the farmstead sites. This occurred with primary, secondary, and tertiary buildings, often to make space for the construction of a new building: "The buildings have changed so much over the years...they've been moved around or replaced." At one farmstead, however, four buildings -- including a two story horse barn -- were moved simultaneously to create a new farm site about three quarters of a mile distant. This move,

like others from the earliest periods of settlement, represented a revised knowledge of the site, or its changing conditions. Among most individuals interviewed, however, the moving of buildings was considered almost a matter of routine.

The momentum of an existing site configuration seemed to have considerable influence. Even when a building or fence was moved, the overall site configuration or basic circulation diagram was still respected and adhered to. A process of incremental change tended to reinforce the strength of early patterns on the site, rather than change them. Through the gradual addition and replacement of buildings it was difficult to make fundamental revisions to site organization. Although moving buildings was very common, these events did not seem to cause the disruption of an established circulation pattern on the site (see Chapter 5). Buildings were moved onto the farmstead from elsewhere, moved around on the site, and given away to neighbors:

> This is the granary that's behind the barn, and this is the old shop. We moved it from over here...pulled them both over here.
>
> I just slid this old shed out here...it's still got all the old harnesses.
>
> The house was torn down, piece by piece, and my father had it re-built into the present house that stands next to the P Company.
>
> We gave the brooder house to a neighbor. We lifted it up, and put it on a trailer.
>
> The [brick] building was moved to that site. It used to stand in town... They had to move it by trailer, and it slipped off the road on its way into the driveway. It survived really well.
>
> That was moved from over there too. They moved that [barn] and the house, and the log granary, and then this little log house.

Buildings were usually moved because of changing uses, new stock, or a shift in the way business was done. Construction of new buildings often demanded the removal of an older one to make space on the site:

> When we built the barn there, then we moved [the old shop] over there where that shop is now. But it was just a little one, you just drive one car in.
>
> We moved that little building up there, built that for a barn, and we'd put our ponies in there. So we'd ride to school and then put our ponies in the barn, and

> then we'd ride home at night. ...Then when we quit going to school well, we brought that home, and that's that pig house up there.
>
> So those little houses behind the barn, were farrow...that big one's an old granary, and so we made farrowing pens out of that, so we could farrow our sow. So we moved those [buildings] in when J and I were probably...it would have to be '48 when this building was moved here.
>
> The icehouse... It was moved down to where J's new shop is, and was used as a workshop.

There was an ongoing demand for flexibility on the farmstead site. Building functions often changed or new needs emerged as the activities of the business of farming and ranching shifted or expanded: "As things matured, there was a necessity for another barn." The internal organization of buildings was often changed to accommodate different work, or a different way of working. Whether or not space was perceived as limited on the building site, older buildings were moved or demolished to make space for new ones:

> They used to have a wood shed right there where that shop is I put in...I tore that down too.
>
> We tore down the shop. We built that new shop after I came back from T in '91. I tore [the old one] down and built that new one for him.
>
> When we first took it over, we tore down the old horse barn, and replaced it with a kind of a lean-to shed.
>
> The barn used to sit on this foundation where this shed is. Case 03B, page 1.
>
> It was starting to...oh, the roof had blown off of it, and it was in really bad shape, and about 10 years ago I had them re-do it, and put in a completely new one. It's in the same location, but they re-did it.

The accidental loss of a building by fire also illustrated the tendency to replace the building in the same position:

> The house was rebuilt in 1949, but it's in the same spot. What there was of the [burned] house, we moved it off and put the new house in the same area...that was in 1949.

In general, there was a perception of buildings as transitory elements of the site. It was widely accepted that regardless of their character or the period of history they

represented, buildings had to be demolished when they had reached the end of their useful life:

> It was an old hip roofed barn. ...the roof got bad, and it all got rot in it. So we ended up setting fire to it.
>
> We took down some buildings that had been put there by homesteaders on the R Ranch. Then on the L range there were a lot of sheep sheds that we've torn down or burned down.
>
> Dad tore that barn down when I was in college. It was falling down...it was getting to the point where it wasn't safe to go in.

The transitory quality of structures was accepted as a natural process. However, when loss occurred suddenly by accident or fire, it left a lasting impression:

> We had a root cellar there and we kept [potatoes] in there. Then the roof caved in.
>
> In 1899 the old cabin burned down, I remember that because their child was 2 years old at the time. They lost everything.
>
> We had a wooden granary and somebody apparently had been behind the granary, and I suppose they were smoking or something, and I'm assuming that they probably threw their cigarette butts out. How soon the fire started I don't know, but anyway, it went down.

An overall sense of the position of the building site on the land holding was often understood by the relationship of building site to the road. Proximity to the road determined the effort required to get in and out of the place, especially in snow or mud. All three of the three of the building sites were originally located at the center of the land. Two of them had an early public thoroughfare passing directly by their buildings, and traversing through their land. In both of these cases the thoroughfare evolved into an improved county road. While this development made the building sites more accessible, especially for motorized vehicles, it also began to divide the overall site plan. It had the effect of conceptually shifting the building sites to an edge rather than the center. At one site this division precipitated the sale of a large land holding on one side of the road, and at the other site it caused increasing conflicts with traffic:

> The traffic on the highway has become a problem. We have land on both sides, so we have to cross often. This has become more of a problem with moving cattle

> down the road. We had someone pass a flag car because she felt it was moving too slowly, and she hit 6 or 7 heifers, killing one and injuring the rest.

At the third site, an improved road developed along a section line which formed a boundary of the land. An increasing perception of inconvenience or inaccessibility of the building site precipitated the movement of all the buildings across a creek to an edge of the land adjacent to the road three quarters of a mile away:

> The people that moved it were farming the place. They wanted to get it closer to the highway. Rather than build a road so that you could get up there, it made more sense to move the buildings.

Roads or driveways were very frequently referred to when relating incidents, or describing the location of a distant part of the site or beyond. The part of each place which was considered the center of activity was invariably on a driveway within the building site. The driveway was often used as a reference point for describing and locating all of the buildings. Both roads and driveways were considered somehow timeless, even as their evolution was being discussed:

> The driveway was always here.

> I think at the time it was there, they built it there because it was in the center of the property. And it's on the road -- it's always been there.

> This road's been here...well, the neighbors have water rights back to 1865, and apparently this road was put in at that time. And basically I think it's in the same place it was at that time. It did lead to the neighbor, but we bought the neighbor out.

> The main road has been there, but see that wasn't graveled until...in the '50s. That was always a stretch of mud road.

Perceptions of roads as relatively unchanging features tended to reinforce the sense of stability of the site plan. While physical changes to buildings, fences, and other structures were a frequent occurrence, the patterns of circulation and overall layout were perceived as very stable. Paved or busy roads were considered rigid boundaries, because movement on them with livestock or equipment presented hazards. Where movement across a boundary was perceived as more safe or convenient, the edge was considered less rigid:

> There's the highway. Physically I think of that as being a hard, clear, definite edge. The [gravel] road, because most of our gates border on the road, is not a rigid type of boundary. South we have virtually no gates on the whole south edge of the place...we've got one where I go into a neighbor's to just the headgate for my water.
>
> Well, at that time there was a railroad track that separated us from W's. It ran all the way down through there. That was pretty much the barrier there.
>
> ...the railroad track...that's a pretty well-defined boundary.

Cognitive mapping of the site plan was an important way of organizing knowledge of a complex and continually changing environment. The fact that reconstructions of the sites during earlier periods rendered site plans fundamentally similar to the present revealed more about the perceived history of the place than the actual history. It suggested the persistence of the conceptual site plan, or cognitive map that individuals at each site shared. It was through the efforts of their daily physical engagement that they understood the complex organization of their environments.

Conclusion

Through actively working with livestock, building and maintaining structures and fences, and working the land for crops, ranchers developed a highly physical and tactile sense of their environment. They experienced and accepted the weather as it came, convenient or not, when animals had to be fed and business had to continue outside. Their daily physical involvement with soils, terrain, water, and animals provided many opportunities of repeated action through which to know their surroundings. If their predecessors on the site had, indeed, based their choices of building site on their own localized experiences (Chapter 4), this finding was reinforced by the experiences and perceptions of contemporary ranchers.

The construction, removal, or movement of buildings on the farmsteads were potential opportunities for dramatic shifts in the layout of the site plan. However,

according to those interviewed no dramatic changes in configuration occurred once the current location of the farmstead was established. The placement of all new buildings tended to reinforce a site plan concept that was established by the earliest known buildings on the immediate site. The removal of all primary or secondary buildings was always followed by their replacement with new construction in a similar or identical location.

CHAPTER 9

CULTURAL KNOWLEDGE & MEMORY

There are two ways of learning something
and trial and error is kind of expensive.

Introduction

The people involved in this study understood their places in more complex ways than the physical entity alone. Their visual and haptic perceptions were accompanied by other sources of informal and formal learning. The culture of the Gallatin Valley agricultural community formed a larger context for accumulated knowledge. Ranching families associated many aspects of their places with people, events, and history. By knowing local and community history, and by sharing folklore, ranchers developed deeper understanding of their own role in a larger time frame associated with their places. The perspective of a time dimension, which placed their own families within the agricultural heritage of the region, generated powerful feelings about their surroundings.

Associations with other people -- whether family, friends, or neighbors -- generated shared experiences of working together, memorable events, and story-telling. Eugene Walter suggests that "we get to know a place when we participate in the local imagination" (Walter 1988, 2). The imagination may be comprised of real events or myths. Important to this concept, however, is a sense of shared knowledge. Neighbors who shared boundaries on the same creek, for example, knew and shared the irregularities of water flow and erosion of the stream banks. Similarly, information and understanding about details of farming practice on a particular piece of ground, for example, were

passed down in the family from one generation to the next. Ranchers recognized that shared knowledge afforded them a degree of effectiveness in their work: "There are two ways of learning something and trial and error is kind of expensive." They sought and utilized both formal and informal learning from other people,

Social & Cultural Influences

Appreciating Early Siting Decisions

Many of the ranchers interviewed expressed an appreciation for the early choices that were made in placing and orienting the building site. Flooding, for example, was well known to be a serious problem on lowland farms. The historic process of siting the farmstead based on concerns for water, shelter, drainage, and accessibility (explored in Chapter 4) seemed to be implicitly understood. Contemporary ranchers were well aware of the importance of siting for early settlement, and often expressed a sense of admiration for those who had the wisdom and sensibility to establish a farmstead site that was rich in critical qualities:

> You know it's just so typical of all of the old settings. The main thing is you wanted some protection down in. In those days they didn't build up for a view on top of a hill like they do now. They wanted some protection from the hill, and from the elements, and you wanted a good water supply, and a decent pasture, and that's about what this amounts to.
>
> Things are pretty bunched-up for two reasons: First, the ground is really productive, and so you don't want to take-up a lot of it by spreading out buildings. Second, There aren't too many building sites on higher ground.
>
> The ground in the area where the buildings are is very shallow and there's a lot of rock and gravel. It drains good. Without irrigation it's very dry. It's not a bad place for buildings. If you have good land it's a shame to put buildings on it where it can produce something.
>
> And then it's built so that it will all drain, it's all...it gets awful icy sometimes, but at least you're not going to have water in anything, it's going to run right out, right down that driveway, way down to that corral, and keep going, see that's the reason it's all built that way.

> Those homesteaders weren't stupid, you know, they put the buildings by the house, by the creek, where the water was, where it was convenient. You know you had to have horses, so you had to have pasture, and you had to have hay.
>
> It seems to me it was kind of hand-picked, because it's about half way between C Creek over here and then there's also a spring that used to run full-time down in front of the [building] here. At that time they were concerned with making sure that you had a good water source, so they put in the pipe line to the spring up there for their domestic use, so it's just an ideal spot as far as water rights and everything.

Ranchers also understood the reasons for an outdated organization of floor plan within the older buildings. They recognized the historic need for adaptability of the place to accommodate various types of livestock and produce for changing agricultural markets. Former patterns of work and use were well known and appreciated:

> It was a horse barn basically, when it sat over in the field. There was room for 4 teams of horses...maybe 10 horses. Then there was a feed bin, and a place where they put the saddles, and that kind of stuff. The main part of it had room for 4 horses on each side. And then there was a lean to on the side of the old barn, and that was where they milked the cows.
>
> The other end has got a big rail on it where they used to pull [the hay] up with a horse on a rope and pull it up there [to the hay loft]. They could throw hay down either side, they had it fixed like this [with mangers below the edges of the loft]. You can see the rail up there with the rope on it, and they filled that all with loose hay, clear to the ceiling. And they'd just fork it over for the [horses]. This was all full of teams on this side. This was all built for work horses.
>
> At one time, when the original people put that barn up, why they milk cow stalls on both sides of the barn, with calf pens in the middle to feed calves.

Water Rights

Because rights were not typically filed (nor, therefore, legally documented) in the valley until 1982, they were established by use and recorded only within the family. The importance of historical rights within the community is suggested by the fact that ranchers that were interviewed revealed a fairly precise knowledge about their water rights:

> C Creek comes from up there...and our grandfather had water rights on that clear back to 1887 or something like that I think.

> The neighbors have water rights back to 1865...but we bought the neighbor out.
>
> Our rights are 1873, from M Creek supply ditch.
>
> We've still got an easement to the spring up here...that was the sole water supply for years down here.

Local History

Most of those interviewed communicated rich details of history local to their own ranches. Some of their knowledge was from their own experience, and some was gleaned from other local sources. This knowledge reflected historic development typical of early growth in the valley (see Chapter 4). In one case a rancher had done some extensive research on the history of previous owners of the land. In general, knowledge of local history often regarded earlier configurations of roads or previous settlements:

> That used to be the main road [into town]. And then as town built this way... ...Because it used to be Wallace was where the elevators and the gas stations [were]...oh, sure, there would be no reason to go here, see.
>
> You see this old building with the dirt roof? That was a very nice home. People lived in that 'till about 1942.
>
> There used to be a fence there...this is a section line. Well, this was the 160 that he homesteaded. And his first building was down here...let's see...where you see the silo there. The first building was just this way from where that silo is. There was an old granary there until just a few years ago, and that was were the original homestead was.
>
> When I was a kid there was a gate there...where you went in through the neighbor's pasture and then you came out on B Road. And their pasture, where B's place, is there used to be a post office and a store there, and they called it Dog Town -- whatever that was.

There was also a sense of shared knowledge about the creeks and rivers which extended well beyond the boundaries of land holdings. Perhaps ranchers perceived these elements as connecting them to each other in a significant way, since they shared water rights from these sources:

> I don't know, most old-timers that I talk to claim that this area didn't have the old Cottonwoods, like you find upstream.

> West Dry is a creek that probably to this day nobody really knows where it's original heading was. Because in the last 140 years with the farming practices...it's obviously a stream that rose south of here, and canals have been built, and it's been adapted so much that it's kind of lost it's original identity I think.
>
> That's a slough, there are a lot of them in the Gallatin Valley where the river has changed its course.
>
> About ten, fifteen years ago I went to his estate sale over there, and he had just all kinds of arrowheads that he'd collected after he'd plowed his fields. And I guess down along those trees, along the river and everything is where the Indians did most of their hunting, and there must have been a lot of hunting activity in here.

Knowledge of the larger Gallatin Valley agricultural and settlement history was also expressed as an important way of understanding the significance of their own place. Ranchers' comments reflected a knowledge of settlement in the region, the development of irrigation, the open range, and the development of farm equipment:

> As far as Montana goes...Virginia City was the first place because of the gold...and then when people stayed here, they had to eat, so then we got into the agriculture.
>
> Early in the development of the area, was the development of the water so that it could be irrigated.
>
> Well, it goes back. It was one of the first places that was settled in the valley here.
>
> There was no fences or anything, I mean...you just had a common area, you turned all your stock in wintertime and they went clear to the mountains up there, until the snow hit, and that pushed them back. There was fences down on this side of the road.
>
> Our neighbor still has the tractor, a 1936 John Deere, that I cut hay with when I was 15 years old. That's the tractor I started with, and the mower -- the old #5 John Deere mower was in use here in this valley ever since 1936.

Of particular importance to those at the ranch threatened with sale was an awareness of the increasing need for ranches to expand in order to survive. They recognized the recent trend of competing uses , as their own leased fields were lost to development, threatening their own survival:

> Most of this valley was homesteaded with 40 and 80 acre homesteads. And this happens to be a 320, and that was a fair sized place or an average sized place for

> the valley for what people did here throughout the years, and now it's a small place to make a living.
>
> We're losing 60 acres a year probably. When I first moved down here we probably leased 6 or 7 different places. It's getting kind of bad. That 60 was the amount that was being subdivided every year. So it's gone from a pretty big place altogether to a pretty small place.

Their awareness of a wide range of much larger state and national historical issues reflected the way in which ranchers saw their own families tied in to a variety of western experiences, such as early sheep outfits, anti-German sentiment, WPA projects, and changing environmental laws:

> We've had three herders out in the past. ...But there were sheep outfits in Montana that had ten or twelve camps. ...about 1000 or 1200 ewes is about all you can put in one bunch.
>
> During the war, I guess, granddad changed his spelling to "dt" on the end, and said he was a Dutchman (laughing) because he didn't want to be castigated for being German. It sounded like it wasn't something you wanted to be very proud of.
>
> In 1936 my grandparents got flooded-out in the Musselshell River, with the construction of the Fort Peck Dam. They lived 135 from the dam site! They were really not compensated for their land, and they had to look for a place to start over.
>
> The laws have changed...there used to be chemicals such as 10-80 that you could actually poison coyotes with. When I was growing up, that was a period of time immediately following 10-80, in which the population had been low for many years. But then if you take acreage out of production, it changes the way the populations appear, and everything.

Ranchers related scenarios of settlement history that were classic examples of occurrences throughout the west, but they knew and understood them through the stories of their own places:

> It had belonged to some people by the name of W. Somehow he got to America. He...homesteaded this place. Except that the buildings were over there about a mile. It must have been I think 1867. Then he sent for his wife, and we have a record of this too. She left England, and came on the boat. And she got to San Francisco, and by sea that must have been quite a trip. She told them she wanted to go to Virginia City, and she ended up in Virginia City, Nevada. She realized after she got there that this wasn't the place. The story goes that she sold her wedding ring, and got the money to go to Virginia City, Montana.

> I think W had this 160 [acres] that was his homestead, and then he had this state section. And back in the early days, why, if somebody wanted to buy them, you could buy those state sections.

They also communicated an understanding of very specific facets of vernacular architectural history:

> That was probably part of the [original] building, or you know how they did it, the homesteaders, they built a shack, then they built onto it.
>
> I guess the old house is still there, but the barn is real similar to the barn that was here. I think that's how most neighborhoods go. Somebody builds a barn and either they get the same carpenters, and say "ah, I'm going to do this too." What started out in New England ends up in Montana...it takes a long time and a lot of little subtle differences.
>
> [The house] is 100 years old. It's very typical of that time frame.
>
> I think our houses are too warm, compared to what they were in former times.

Accumulated Knowledge

Those interviewed expressed a sense of accumulated knowledge about appropriate grazing and farming practices for their ranches. They often pursued avenues of inquiry by self-directed, formal and informal learning:

> With wanting to grow more grains we have improved our riparian areas. We've learned that the willows are kind of important in preserving the river bank. We've learned that if we preserve the riparian corridor it's better for the agriculture.
>
> The river is the line between the D Ranch and our ranch for about a mile and a half of waterway. I've never seen a description like that before in my life, and I don't know how they ever got it done. A fellow by the name of LH owned this side, and AL owned the part across on that side. And so they decided they'd just use the river for the line. But that doesn't work very well, because your boundary line changes every time the river comes up.
>
> I think in general Montana is a desert...most of it anyway. If you look at the Helena Valley and the Townsend Valley, or the Jefferson Valley, even the Madison Valley, you have to get really far up the Madison Valley to find an area that is as well watered. And it's because of the way the mountains are situated around us here. ...And then with the mountains you have a really constant supply of water to keep it green as long as the growing season.
>
> I didn't really point the river out here down here either. It's very fast. That's why these bends change so often. And then you don't really want to lose your bends, because it slows the water down...but it keeps taking ground.

Railroad

Local railroad lines were viewed as an important part of the historical success of Gallatin Valley agricultural producers. History of the local rail lines was well known at all three sites, even though the last tracks were removed in the 1960s:

> We used to haul to the Springhill elevator for the Turkey Red Special.

> That was the Turkey Red spur... that's what they called it at the Milwaukee Railroad. It was a narrow gauge line that went all the way to Maudlow out there to pick up all the grain out in Springhill. It goes right up to Story Mill. It was about...1965 or something like that.

> This railroad was built in W.W.I, because the grade on the line coming from Logan to Bozeman was so steep that it held the trains up. So they put the big 'S' curves in it coming up so that the engines could pull the train. Instead of going 17 miles, it went 30 or so...basically twice the distance.

However, the railroad was not looked upon favorably for its methods of acquiring land. Two of the sites studied had family lands that were condemned by the railroad when it established a right of way through their land. Firsthand experience of the way in which the railroad approprated private land for the establishment of lines was perpetuated in family lore. Three generations later there was still some bitterness toward the institution of the railroad for taking possession of family lands:

> When they put in the railroad that [land] was condemned from my grandfather, they didn't pay him a cent for it. They just condemned it. Then when the railroad got ready to sell it, they sold it to the highest bidder. Well...[the neighbor] wanted the land, and we wanted the land too, so we ended-up having to pay through the nose...or my mother did...in order to buy the stuff back that they stole from us.

> The railroad came through, and it was just like the railroad always did...they had the right of way.

Rail lines rarely coincided with the boundaries of land ownership, so their introduction caused many conflicts between neighbors, and problems within families because of land division. The experiences of the families interviewed may have been typical throughout the west:

> Then the railroad came through, and the place was split. Charley got that side, and the sister got this side. ...but anyway that was his half...his part...it wasn't half, see,

> because this was 300 acres on this side, and he only got 160, but his was all the sub irrigated ground.
>
> Well, at that time there was a railroad track that separated us from [the neighbor's land]. It ran all the way down through there. That was pretty much the barrier there. Whenever we tried to run the milk cows down there, we'd put poles up at each end of our property, to try to keep the cows from going out on the road, but the train would never stop to open the gate. And they'd just drive the locomotive right through, there'd be poles scattered every which direction, the cows would all leave, and you'd have to run like crazy to get down there to try to gather things up. Or else if you'd see them coming, you could run down there, pull the poles, and let the train through...but it was always quite a race.
>
> Then, the way this place is shaped, because of the old railroad right-of-way, we kind of have a no man's land back on the east edge of the place, mostly railroad right-of-way. Odd strips of land that are relatively inaccessible...it's not easy to use that.

However, the ways in which the railroad had been useful to their families was known to ranchers from stories that had been told within the family:

> The way they had to get [the cattle] from show to show was to stick them on a rail car, and they'd just run them all the way back to wherever the show was.
>
> This was just a freight line, the main line came up the valley, and the freight line came up on more of a gradual grade. There were sidings all over... you'd go to town and order up a car, and ship your grain on it. I think the siding was right here. I think actually, the siding, my grandfather owned that, it was for grain and there was a stock yard there. The road was put in the...30s I think. I suppose the real actual useful life of the railroad as an artery to the farms was about the 20s or 30s.

Feelings expressed about the railroad reflected ambivalence. On the one hand, ranchers appreciated the ways that rail transport had contributed historically to the success of the community, while on the other hand there was a resentment of corporate power in their methods of acquiring land.

Changing Technology

The experiences of ranchers reflected constant shifts in the technology of farm machinery that accompanied agricultural development. Many of their remarks on this fact illustrated the ways in which it altered the nature of their work:

> Modern equipment has made a big difference in how you put your hay up, that's for sure.

> When you put up loose hay, you stacked it out in the field, because especially when you were using horses, because you didn't want to move that hay too far. Because we used buck rakes, and you slid that along the ground. So you piled everything around the field. We have one stack yard per field now, where we used to have maybe 3 or 4.
>
> I can barely remember them, in about 1950-51, stacking the hay with an overshot stacker. They hoisted it with a pickup instead of a horse. I remember them thrashing oats.
>
> We started getting tractors, the first tractor we got was in 1950, and I was 4 years old then. So I was kind of...I came along just as they were getting rid of their teams. Up until that time they were feeding and doing all the farming with them. I think that's just about when most of the tractors started coming on, little farm tractors in the '40s and '50s, something like that.
>
> That was the first [sheep herder's wagon] we had. Actually that camp trailer there in the yard is one of our sheep camps. Those old wagons...they were hard to move, and that one had springs on it, it was built on a car frame. But most of them were on wagon running gear. So they didn't pull very good.
>
> I had to save the slaughter wheel, I could tear the slaughterhouse down, but I had to save this. This is what...you know...before they had any electric pull or anything, it was all done with this. This rope goes around [the perimeter], it's got these little cleats in here, and that was what they would pull the beef and the hogs up with to...slaughter them. Yeah, to skin them, and clean them and everything.

On one site an icehouse, which was no longer needed after electricity and refrigeration were available, was moved about a hundred feet to become a shop. The shop was later replaced twice with other shops of increasing size. Most ranchers recognized that the increasing size of farm machinery led to new demands on existing buildings and spaces. Structures were modified in numerous ways to accommodate these changes:

> Well, [we added the larger door] because when they fixed that other end for a combine, they kind of cut the wall out.
>
> The sheep shed, because of the way we use it and clean it with the tractor to clean out the old bedding, we pushed the wall out, off the foundation. We've replaced the...it was a frame wall sitting on a foundation, and now we've made it a pole structure.
>
> I had an arena fence in here for years, and I kept needing more driveway, so I had to keep shortening-up the arena.

Some of those interviewed related scenarios of conflicts that had occurred when the culture of the community adapted to technological changes, abandoning formerly shared

cultural knowledge about livestock that was still a part of rancher's lives:

> Well it takes extra people every time you want to move something down the road. You've got to flag, and even then it's no sure thing they're going to slow down. Then they'll give you a cussing sometimes because they have to slow down. You know, they've moved out in the country because it's peaceful and quiet. But at the same time they don't want to have anybody getting in the road to slow them down.

> When I was a kid I used to start horses, quite a few, for people, and I'd work them up and down this road all the time, and in those days people would see you coming, and they'd stop, and almost pull off the road, and give you a lot of room. But it seems like every year there's less people...fewer of them that have any horse sense...and if anything, they try to see how much of a rodeo they can produce. It's something we're losing, people are losing out of their vocabulary, is anything to do with a horse. Some of them, I don't think they're doing it maliciously, they're just ignorant, they don't realize that you're in any danger.

Inversely, some expressed their experiences of the larger culture being unaware of the scope of technological changes that has transformed farming in the last fifty years:

> Lots of people think of agriculture as being synonymous with open space, but it's not at all the same. They overlook the fact that the business of agriculture involves dust and noise from machinery.

People & Memory

Family Members

Members of the family were frequently referred to as ranchers talked about their places and their work. There were no clear boundaries between living and working on the ranch. Family and ranch work were considered an inseparable whole. Families worked together as each individual assumed a role in the season's labor. Frequently a senior family member was referred to, because they had modeled a way of working. Junior members of the family, on the other hand, were also recalled because of their defined role in shared work:

> It's pretty much patterned the way my grandfather did it. He'd get up at 4 o'clock and do the first milking, and instead of milking, we'll usually start feeding...it was sheep and cattle at one time, now it's buffalo, but it's the same business...first thing.

> The things that they did right that made it an easy place to operate, and then of course the things that they did wrong that made it a difficult place...that weren't

> efficient or... I've wondered, "well, why did grandpa do it that way, why didn't he do it this other way, that was so difficult."
>
> The hay would be taken from the rake to the stacker, and stack it loose. My little sister used to drive the pickup at the stacker.

At one site, while there was tremendous respect between father and son, there was a degree of tension between them as they negotiated a transition into a family corporation:

> That's a whole different thing, to have employees where they are family, and though we are in business together, it's not quite the same as having employees. When they were employees it was no problem, but now we're in business together, so it's different. ...but life gets more complicated when you have family.
>
> The landlord is my father, and if he doesn't want something done to his place, it's okay with me.

Families were also an important point of reference for historical knowledge about the ranch. Sometimes old letters or other records were referred to that documented this history, but in other cases such knowledge was simply passed on through oral tradition:

> The ranch was homesteaded in...1884? By my grandpa.
>
> [My great-great grandfather] was the one that first built that house and this barn.
>
> I guess it was always nice to know that my grandfather came in 1869, to Virginia City. And then...he probably tried to mine gold for a while, but then he started working on a ranch or something. Anyway, he got in the ranching business.

There were numerous instances when a senior family member was referred to because they were associated with a specific type of livestock or crop. The produce of a relative seemed to form a part of their identity in the perceptions of those interviewed:

> My mother's father already had the Brown Swiss dairy already running here.
>
> My father used to raise registered Hampshire Hogs. He would take them to Portland and Chicago to show them.
>
> There was a Choke Cherry patch about a mile from the house. [My husband's] mom raised potatoes there.
>
> Then dad kept about 80 ewes here, after we'd sold the ponies. We must have had them 8, 10 years. He kept about 80 to 100 head of sheep here.
>
> My father did a lot of irrigating. ...It was wonderful land. He got at least 3 crops of hay off the fields.

In one case, a rancher transferred his understanding of how the influence of family had played a part in the development of his own place to his leased farm land. Family hierarchy and tradition were assumed to have determined organization of the fields:

> Some of those ditches don't even run downhill. "That's just the way grandpa did it so that's the way we did it," I mean the grandfather of that place.

Ranchers associated family members with may aspects of the domestic life of the ranch. Sometimes these marked decisive moments, while others were a part of daily life:

> I moved into town when I was ten, because my grandmother who was crippled came to live with us, and we had no indoor plumbing.
>
> I remember the nieces and nephews hiding Easter eggs all over the place.
>
> We had beautiful willow trees all around the place that made it very cool in summer, and the kids loved to play in them.
>
> Our oldest daughter was about -- she was in college yet -- why she painted it...painted the whole house. And it made it look a lot different, and you know, it lasted and lasted and lasted! ...and that's what she did.

Family stories

Anecdotes that were passed down in the family helped to shape each individual's perception of their places. Stories of events that had taken place within the family or on the ranch became part of a shared narrative through which family members understood both family and place: "You wonder...all these stories that went through some of these old buildings here." Often these stories referred to specific buildings, some of which no longer existed:

> There is a little church right there on the corner of the Jefferson River. There is a stained glass window in the front that I'm told my grandfather bought.
>
> The "burned-out granary" is a name used for one pasture. Nobody knows any longer where the granary was, but the name stuck.

One story reflected a growing cultural distaste for the primitiveness of the outhouse: "There was an outhouse there, because we didn't have indoor plumbing, and my mother,

who was from the East coast, couldn't stand the sight of it. So we built the wood shed over it. ...but the southwest corner was the outhouse."

Animals were another common topic for anecdotes, which were often humorous. The details of the stories varied with the teller, but the effect was consistent. The stories often gave memorable character to a particular animal, which sometimes had a name, and was memorialized by the telling of the story, almost as a family member. Knowledge of animals and their behavior added dimension to these tales, so that they really seemed tailored for telling to others within the agricultural community:

> When they needed a new work horse they'd have to go up here to the stockyards to get one and they said they couldn't afford the decent ones that were bringing about $12, so they'd end up having to buy the ones that were bringing about $7. They'd bring them home to that fenced yard up there in front of the house. They put this one big old black horse in there that they brought home from the sale yard, and they came out the next morning and he'd fallen over dead right in the middle of her flower bed. It was one of those $7 bargains.
>
> I think B said his name was Old Pokey, an old Appaloosa work horse, and some way he'd back up here, and they'd hook the bundle of hay to it, and he'd go out and this was pullied up, and [the hay] would go up to the top. I think they had a kid ride him, and he just went back and forth.
>
> When I was a baby that front door on the front that comes just right off that level...they'd just bring the pony in the bedroom there...well it was a living room then. They could give me rides in the house then, because they didn't want me going out and getting cold in the winter. ...They said I couldn't sit up in a chair, but I could sit up in a saddle.
>
> I think the only chute they had to load the pigs was down here, so they had to string a line of grain down across the road to bring the pigs down here (laughing). Then they'd try to back the wagon up with the team, and have them hold still long enough to get the pigs to file into the wagon. And one time they got pigs all ready to get in there, and the team pulled away from the gate and they lost the whole shebang.

Other stories reflect attitudes and events that were typical throughout the west, and reflect widespread experiences:

> When the Indians came to town, they'd have to come down this road, they came all the way down that ridge, and filed down this way into town...but this was when [my mother] was a little girl, she had strict instructions, that if she saw them coming down that road, she was supposed to go hide in that wood shed until they got by, because they were afraid that they were going to steal her.

When my grandparents were running the ranch the thrashing crews from all over all stayed here...up in the barn. My dad remembers that.

Memory of Events

Events that were particularly memorable figured prominently in ranchers' descriptions of their places. These memories from direct experience recalled frightening or trying events, disasters with livestock, embarrassment, or childhood games. They were experiences which invariably were shared with the family or the community:

Well, when we lost all the hay in the fire, that was a tough year.

That little guy in there set fire to a haystack out by the sheep shed one year when we were lambing. And he started screaming at me and I looked up, you know. And I could see the flames coming on the other side of the sheep shed. But we almost lost everything...a couple more minutes, and the sheep shed would have caught, and all the lambs...it would have been horrible! So it was kind of a terrifying half an hour, but we got it out.

We lost several cattle one year. We were always aware that grain hay might have [nitrate], but some of these grass hays have it. Well, we lost nine and then another day we lost five. So we burned the hay.

When I had just got back from the hospital with my first child, there was a fire at the R Ranch and [my husband] was down fighting the fire...someone knocked at the door at two a.m....I was terrified to answer the door. It turned-out to be a neighbor wanting to help with the fire.

Disastrous events tended to be perceived as exceptions:

I don't have any dissatisfactions. I don't expect everything to go right all the time.

When you have a down year it makes you more thankful for the good years.

Many scenarios, whether humorous or not at the time, were remembered with humor:

I remember one of the most embarrassing things I ever did...I went to sleep on the tractor, and of course you're making these nice rows with your rake -- windrows -- and I went to sleep over there...and I was up about six windrows into the field, and the tractor started veering downhill towards the creek, and I woke up about one windrow before I hit the fence (laughing). There was no way of erasing it you know (laughing). Oh, dear! I just racked my brain...Now how am I going to explain this? But I can just see that so vividly, making that terrible swath right out through the middle of the field.

When I was in high school we did a lot of crazy things, but we had 4 kids that did a square dance [on ponies] on the stage out there in Wilson High School.

> Me and the kids tried to milk cows once when the kids were eight or nine and S and his father were both gone -- each thought the other would be there to do it. It was a disaster.

Childhood experiences were the basis for numerous anecdotes, sometimes tragic, but always leaving a lasting impression:

> When one of [the neighbor] kids was sixteen or so, my Dad went up to the orchard one day, and all the apples were gone. He was so angry that he cut down all the trees. And that was the end of the orchard.

> I had a whole group of friends that all rode our ponies together. ...I wanted to have a party for them -- there were about 12 girls -- and [my mother] cooked a big meal for us with a roast chicken. One of my friends wanted to carve the chicken, but she was very prim, and she wouldn't touch it with her hands. Another friend who was a little older was like Calamity Jane, and she said "that's not the way you do it", and she just reached in and tore that thing apart.

> One of my favorite things was climbing on the roof on the east side of the barn where Mom couldn't see us, just below the top of the pitch. We spent a lot of time playing in the barn. We used to jump out of the ends, that was pretty good. The old horse barn was even higher, and we used to jump out of there too, and that would knock the wind out of you. But nobody ever broke any bones.

> One of T's elderly aunts who is virtually crippled had to make her way up the steep staircase into the loft of the barn just to be up there again, her memories of playing in that place as a child were so important.

Memories of unusual occurrences formed the basis for stories to be told for years afterward, forming part of a shared understanding of place.

Friends, Neighbors, & Employees

The families interviewed viewed the community, historically, as a resource for mutual support. Conflict and competing interests, however, were more often noted between ranchers and a changing community. Friends and neighbors who shared common interests and priorities were the source of many positive experiences, and were portrayed as an essential part of the rancher's local community in both work and social life:

> My folks belonged to the saddle club: ...and we took off and rode the Story Hills... And it was about 11 o'clock at night when we got there. And they had built a big bonfire, and had the old coffee pot on the tripod. I can still see those old

> gals...there were some pretty smooth mouthed old gummers on that trip, boy. Of course, I was pretty little. ...there would always be two or three gals that couldn't ride that far...so they would take a four wheel drive vehicle, and go there, and start the fire. And you'd get there, and everybody would tie their horses to a tree, and it was really a social deal, you know.
>
> Before we bought the R Ranch, we had neighbors that lived there, and we used to neighbor a lot.
>
> The neighbor's put his combine in here, and he stores our swather, because the new combine wouldn't go through his shed door, and this shed will handle it. So we just made a swap there. ...I always wished I'd made it a little bigger, and the neighbor said, "well, Stan you could have built it from here to Belgrade and eventually it wouldn't be big enough anyway."
>
> Part of being independent was also taking care of your neighbors.
>
> Some of our neighbors I've admired. One of the fortunate things that I've been able to do...we haven't been particularly successful farming, but we've had the opportunity to associate with a lot of people that have done a lot of successful things...great things. ...But I've met those through the Association of Stock Growers and Wool Growers.

Doing business with people involved giving them access to the land, and this often involved accommodating large numbers of people. :

> When I was ten to fourteen years old, somewhere in there, that's when we were into the pony business, and we were advertising nationally. We'd keep a log in the other end of the pony barn there. We'd have people come from all over the United States, and this was part of their vacation, was to come and tour here, and we'd take turns... ...sometimes we'd have two or three cars out...like I said, we had four pastures, and four bands of mares....and we'd drive out through all these mares to show them the colts and studs and everything.
>
> Once the [pony patrol] kids all decided they were all going to spend the night. So we put twelve boys in the boys room, and the twelve girls all had to sleep in the front room. And then when it came time to feed them dinner we had a storm, so they couldn't eat outside -- we had to set them up in the barn.
>
> Because of the improved wildlife we give permits for 2000 sportsmen days a year with daily access permits. There's wear and tear on the gates, roads and fences from that. People come here to fish, hunt, bird watch, or just to have a quiet place to walk.

Employees were an additional source of social contact on the ranches, especially before the development of farm machinery. These people were sometimes remembered with delight, almost as family. Often, however, they were a source of frustration or liability:

> We had a lady working for us once, Hutch was the only name I knew her by. Women in those days always wore dresses, you never saw women in pants. But Hutch, who was from back East, wore pants and she worked right alongside the men. She used to call me a spunky gal and I really enjoyed her, I'll never forget her.
>
> We had some hands stay [in the bunkhouse] when we were raising our family, but it was too much trouble...even when it was raining and they weren't getting any work done, they'd have their feet under the table at meal times just the same. Sometimes they would go into town, and come back drunk, and they wouldn't be any use...we would find the evening milking hadn't been done, and would have to go out and do it ourselves.
>
> This summer we've only got one herder out so... We've had three herders out in the past. We move it...we do all that for them, they don't do very much for themselves. Well, they look after the sheep, that's what it's all for.
>
> Now we used to have more help but...it just doesn't work out. It's just too labor intensive, there are too many days in a row where a person that doesn't live here would want to do it. They'd hurt their thumb, or they'd get sick, or they'd be pregnant or...something would happen. We usually had women come help and do the night lambing, but it didn't work out very good.
>
> We had a man working for us and his wife, who were staying there for a while, but I think she couldn't cook. I remember her coming into the kitchen when I was serving the boys breakfast, she just stood there drooling at the bacon and eggs. She was awful.

The subject of tensions between neighbors was often land or water. The intrusion of the railroad, which did not run parallel with the grid of property ownership, created a confused patchwork of ownership, which caused conflicts between neighbors:

> The neighbor, W, he had agreed to sell us the two acre triangle of his land that was left on our side of the railroad, and then when I had saved up the money, he refused to sell it! So he had two acres on the other side of the tracks that he couldn't use.
>
> I've always found it amusing, the neighbor's barn opens onto actually the southeast corner of the place. The back of their barn is butted right up against the deeded property, but I suppose since the railroad was there, they probably viewed it as part of their place. I think that's another one of those things where this was a rented place for years...maybe the neighbors kind of took advantage of that.

The loss of the railroad lands caused other problems. In the process of buying back the railroad right of way after the railroad closed, there was a misunderstanding between neighbors, and a bitter dispute resulted:

> After a few years I sent A to buy ours back, and I said "if the W piece is still for sale, I assumed he didn't want it, and I'd buy that too along with the rest. W was furious, because he was still waiting for them [the railroad] to *give* his back, and a rumor went around that I was buying the whole railroad. He hated me for that. He left strict instructions in his will not to sell any of his land to [that neighbor family].

Water rights were also a topic for heated disputes. With farm land, water rights were considered almost as sacrosanct as the land itself. Ranchers at two of the sites experienced a lack of integrity in their neighbors, who dishonestly introduced competing interests in their water supply.

> Then the neighbor down here pulled kind of a fast one, I think, but I'll never be able to prove it...he filed some water rights earlier than [ours]...and this was years later...so that he got prior water rights to it, and he's the one that's putting in all these houses up there on the creek, and they wanted to dam up C Creek. So we've had to fight them for the last two or three years in order to keep them from shutting off our water rights, which...we should have prior rights. But the six months is 100 years ago...How are you going to prove that? So it's been a battle over that.

> Our rights are '73, from M supply ditch. Which incidentally, today is dry because the river washed it out, and we've got some neighbors that want us to rebuild their property that the river washed out, or they're not going to let us go on their property to fix our ditch. Now the law is very clear that we have the right to go in and fix it. But they're just going to be ornery about it, and they're going to keep us from doing it if they can. Until we agree to pay for doing it, and they've got this thing up to about $100,000 bill now.

Responsibility for fences was generally shared between neighbors by tradition. When this didn't occur it was noted. In one case the oversight was noted for 50 years:

> At L we have 5,000 acres...that's 13 miles of fence. A lot of it is adjacent to Forest Service land, and they don't fence, so we have to do it all. Since 1948 one neighbor hasn't maintained his fence -- he has only about 1/4 of a mile. Ranch people are generally willing to go half way, so you have to be ready to do a little more than half.

Divergent world views often emerged between the surrounding community and the rancher. Most of those interviewed expressed the perception that they operated in a community that had entirely changed during the last twenty years. They saw themselves struggling to maintain an agricultural business within a community that held completely different values:

> You can always tell a newcomer or a tourist, the first thing they always do is put orange paint on all the fences. Did you see this guy that just bought E's ground over here? The first goddamned thing he did, the first week he was here, he sprayed all his posts on the road with orange, marked all of them. Then he went along our fences, and put no hunting signs on our fence, so nobody would trespass on his ground. So you know he's a goddamned foreigner, I mean, you just drive down the road and you see what's going on.
>
> Weeds are another big thing that takes a lot of money. With the small acreages around here there's a proliferation of weeds. There's overgrazing, and then people think the best thing to do is to take their hoses off it and not graze it. That just makes the problem worse for everybody else, because the weeds mature and seed.
>
> When these new people come, they don't understand that somebody has to make a living [at ranching]...there isn't anything else. Out here, if you don't make it, then you have to sell out.
>
> We had a lady one time that went up and the herder rode up on her. And her dog was killing the sheep, and this lady was just standing there watching! So the herder took out his gun and killed the sheep, because it was all torn up. I don't know that the lady ever realized that something was wrong. Strange...
>
> But there would be people that would go in there, and they'd drive up those roads in the middle of the night, and they were either on dope or...that's the kind of people that come. And the herders never really had any trouble with them. ...It's got to be kind of dangerous place to leave a man with a... Of course we always made sure that our herders had a rifle.
>
> I work for the Cattlemen's Association. The bison thing is...a health issue...you can't ignore it. And yet, people in the Park they don't understand it. Most people in most places don't give a damn or care what happens to the bison...or the wolves for that matter. I think that's the challenge that we're facing in this industry now. We have a society that is dominated by the do-gooders that don't have to work for a living. They're well-financed and have nothing else to do.
>
> We usually just walk [the cattle] down the road with the four wheeler and stuff. Up until this year it's been easy. And now with those new subdivisions that are almost all on the road, right over on Valley Center, we had a lot of people mad.

Visibly different neighboring land uses or treatments of the fence itself also represented edges between different world views, and were considered unfortunate forces to be reckoned with:

> It just seems a shame to be tearing up all this good farmland for houses. It's just gobbling me up on all sides. It's probably inevitable that sometime it'll be eaten up.
>
> If you farmed in 1955 there's no way anybody would ever expect subdivisions within a mile. ...and we've got a storage facility right there just past the fence!

> Then he went along our fences, and put no hunting signs on our fence, so nobody would trespass on his ground. You just drive down the road and you see what's going on. I mean you can tell them, every one of them. This guy over here, when we bought this piece of ground next to him. He went out and painted the damn posts on the whole damn place -- with orange. And every one of them's a dude.

Ranchers expressed a history of close ties with an agricultural community which formed a network of mutual support: "Even in 1980 I knew almost everybody in the valley. There are a few other people like us that are still here." However, those interviewed found themselves at odds with much of the community which surrounded them. They perceived themselves as part of a rapidly disappearing minority, vastly outnumbered, and with little voice left in the community: "Well, in the '50s and '60s even, Bozeman was still pretty much a farm town with a university. ...But in the last 20 years, why, nobody worries about that anymore." The youngest generation of ranchers realized that they were operating in a different context than their parents had done: "Your friends and other members of the community view you -- as people involved in agriculture -- differently than they have historically."

Working Together

Families had a history of working together on the ranch. Everybody's effort was required, especially during the busiest seasons: "I started to work on the ranch at fourteen when my parents bought it. I've been busy. You don't stay on the ranch unless you're busy...unless you took advantage of every minute." Individual roles in a cooperative effort were sometimes reserved for certain members of the family, and children were always included:

> I remember when we got a J-Hawk stacker. I was 8 years old, and I rode that old horse. I'd have to drive the team for the stacker, and I loved that job! People complain that children shouldn't have to work...well I wouldn't have wanted to be anywhere else! I was right in there working with everybody else, and I was a part of it. While I was waiting for each load of hay, I'd catch grasshoppers, and hold them near each other, and watch them spit at each other.

> In that shed out there where J's new shop is, we had those 55 gallon barrels of stove oil, and we used to, J and I always had to pack that damn stove oil and fill those oil stoves, you know, so we had heat.
>
> Our folks always let us do a lot of things, but we had to get the work done first. So even though we worked really hard, in the long run we really enjoyed it. It wasn't like a slave camp deal...but it was a situation where everything we did, we always did together. We would work like hell to get our hay up so we could go to the rodeo. Things like that we always did. Yeah, and we were always part of it.

Each generation in a location had the advantage of parental wisdom gleaned from experience through working together in that place:

> [My great-great grandfather] had these three boys who were eighteen to twenty years old, something like that, and he was trying to write out here to tell them what to do, so they didn't do anything foolish. And one of the things he said was "well, don't go buy a team and a mower or a plow, because you can rent a team and a plow for a dollar a day" or something like that, "and it would be a lot more economical to do that than to go buy something."
>
> I was a freshman in college when Dad and I built that cinder block barn. So I think I learned a lot with a hell of a lot of hard work.

Historically, neighbors also took turns working together seasonally, because they all shared the same labors and concerns: "...everything was loose hay. We'd put up everything loose. At one time, when the thrashing and stuff was on, all the neighbors in this country would help each other." They were like-minded people who represented a supportive community. There were rare instances when women, fulfilling their particular tasks, expressed a sense of feeling either excluded or alone:

> When they were milking they did not want women around the barn. So I kept chickens in a separate chicken house.
>
> It's scary being in there at night alone, when the wind is really blowing bad, and the whole [tent] is shaking, and making really bad noises.

In general, those interviewed perceived the family as a unified team working toward common goals: "We had a lot of people to deal with. It taught you about being prompt, and participating. The whole family was always working together."

Conclusion

There were many avenues of learning which contributed to the way in which Gallatin Valley ranchers perceived and understood their places. Social and cultural influences and memory played dominant roles in this learning. Accumulated knowledge from generations of farming in the valley was acquired by self-directed inquiry, and by working with others. Details of local and regional history were well known, and played an important part in understanding the successful establishment of farmsteads. Ranchers still understood and appreciated the basic elements which constituted the ideal farmstead site 130 years ago. Shelter from local winds, access to water, and good drainage were required for buildings, while rich soils, convenient irrigation, and accessible topography were ideal for farmland. Encounters with competing interests in the land or water were perceived as both a historic and a recent phenomenon. The more recent disparities between ranchers and the community were deemed an irreversible trend of local development. However, it is clear that a region-specific folklore, learned from the experiences of individuals, family, and community, gave critical dimension to individual understanding of place.

CHAPTER 10

SELF IDENTITY & PLACE IDENTITY

There's a little bit of you in every fence post,
every staple that you drive, every nail that you put in...
everything that you do is a little part of you.

Introduction

One of the aims of this study was to examine how or if a setting reinforces the individual's sense of who they are. The sentiments of ranchers suggested that the nature of their work and place was ideally suited to their ability to work effectively. Place and work were important sources of personal satisfaction as a result. Part of their effectiveness was due to a good fit with their own character and interests. They perceived their own character and interests, however, as a natural result of being raised in that place: "It kind of helped solidify my goals and desires as far as liking to drive [horse teams] and do things I'm doing now. If I hadn't been in the formative years at that time doing that type of thing, then I probably wouldn't have it ingrained in my soul like it is." It was through doing the work of the place that most ranchers felt they had formulated their values. They expressed deep attachments to both work and place, describing their appreciation for the unique qualities of both. Stability and history of the family in one location was a part of their own identity, and was severely shaken when land was threatened with sale. The sale of land was, by far, the most emotional and contentious subject between family members.

Self Efficacy

Ranchers interviewed alluded to the perception that the work of ranching was an inseparable part of their identity. They also suggested that succeeding in their work was a necessary part of ranching. They expressed a sense that their places made it easy for them to be effective in their work. The work itself offered great personal rewards for individuals by their compulsion to perfect it:

> Well, I've spent probably half my life on a tractor (laughing)... I liked the mowing the best... It was always kind of a personal challenge to perfect your work... But you could spend hours and hours doing that and it never got old.
>
> The lambing... I don't know why it's so great for me, but it is. It makes me feel so good. Especially when I can keep them alive. When I find one that's about dead, and I go in and tube it and pour milk down it, and get it all warmed up and use the hair dryer on it, and save it. It's such a nice feeling.

They gained an overall sense of satisfaction from the nature of the work. Independent management of time and resources, and awareness of being in control were very important factors:

> I enjoy the farming, too. I enjoy harrowing and getting the pastures all busted-up and ready to do something, and getting the crops in. I enjoy that as long as you don't have too many mechanical breakdowns. Then it gets a little different. I guess I enjoy it because you are your own boss, and you're making some progress, and you can see you're getting something done.
>
> I think just completing the tasks is satisfying. Getting the calves on the ground is important, of course. ...Management of the resources gives a lot of satisfaction -- getting a big grain crop, and getting a good crop of calves. We generally have a plan and stick to it.

Some remarked that they were able to feel effective in their farming and ranching operations, because the demands of the work were well matched to their personality:

> There's no 2 days the same. I always figured I'd never make a very good factory worker, I couldn't do that day after day.
>
> It does everything that I've always wanted to do, you know. I really feel fortunate...
>
> I have a "type A" personality. I like to keep busy, so it suits me very well.
>
> I'm a down to earth type of person, I adjusted to it very well.

> It's pretty long hours for all of us...when we're lambing. It's really intensive. I'm exhausted but it's a feeling I kind of like. And it's my favorite time of the year...I love being that busy.

Sometimes self-efficacy was attributed to the weather or season. The threat of changing seasons was sometimes the impetus for completing work: "I think that because of the seasonal changes you know that whether you get the work done or not, or what you feel needs to be done or not, it's just going to change and the next thing's going to come along no matter what." They expressed a widespread perception that there was a good fit between the weather conditions and the work of each season:

> It's always my favorite time of year. I think out there...lambing, when everything's nice, I think "now this is really nice...we're doing things right." And then this time of year I can look over a field that I've just irrigated and had I not gone to the effort to have something that I did, I wouldn't have the satisfaction. It's just a cycle of satisfaction. It's never the same.

> When it gets cold in the winter, you put warm clothes on. When it gets hot in the summer, you don't have to have an air conditioner running all the time. You've got fresh air, you've got good air. It's a whole lot more pleasant than it is being some place where it's hot and humid. You can live with the winter a whole lot better than you can in hot humid weather. If you've got to work, if you're out and not in the office, which I am, so I like it a whole lot better.

The setting of the ranch itself was also appreciated for the ways in which it facilitated daily life:

> It was all pretty convenient. Things were located so it was easy to get things done, or to go from one building to the next to find the others or the kids. It was easy for them to find their way around.

> It was close to town...we never felt isolated like some folks.

> It was always a good place to live. It was a convenient place to live. Particularly with kids in school...it was close to Bozeman.

In general, the physical settings and conditions of the ranches studied were perceived to provide the necessary ingredients to facilitate life and work: "I guess I really like it because the ground is so fertile. And you don't have the rocks to fight. And the air is always clean, and you've always got plenty of moisture." Critical physical qualities of

both natural and built elements made work effective, and therefore had enabling consequence for ranchers whose identity was tied to their work.

Uniqueness

Ranchers expressed enthusiastic appreciation for the perceived uniqueness of their places. The distinction of their ranch operations was an important part of their own identity as individuals. The younger generation recognized that family-scale operations were dwindling, and that may of their contemporaries had abandoned farming as a living: "Having grown up here, that gives you the experience of a lifetime, but it's through the eyes of a child and the eyes of an adult that very few other people have. There's a pretty select few of us that grew up here and are still involved in agriculture here."

The abundance and quality of natural resources was an important factor in appraisals of the environment. Ranchers compared their places to other parts of the valley, and to places they had worked in other states, and saw their own soils and micro climatic conditions as virtually ideal:

> I think a person doesn't realize how good this soil is, and how fortunate we are to have soil like this, until you try to farm someplace else. ... you don't have any idea how *good* this really is until you don't have it. I think when you grow up in this kind of a situation, and you can dig a post hole without it being solid rock, and you can farm and get a crop without having to worry about a tornado or it drying up, or whatever. I think you really have a sense of appreciation for this valley. You don't realize how damn good it is until you go someplace else. Go to Belgrade and dig a post hole...solid rock, solid rock. ...I don't know where you'd go anyplace and have a better deal.
>
> We never have a crop failure here, we're not at the mercy of storms like in other places.
>
> Even in August it's still green. We don't have cured-out grasses like in Belgrade.
>
> We don't have too many problems with snow drifts here. ...We've got a lot less wind than on the other side of the highway.
>
> We grew up and all of our water was spring water. We didn't have a pump, we didn't have a well, we didn't have nothing. With the spring water, all you do is

> turn the hydrant on. That's kind of a freak deal that you won't ever see again. Everything was out of that spring.
>
> It was one of the few places that had running water, it was all rigged up with water wheels.

Other conditions were also appreciated, which contributed to a sense of unique opportunities:

> I think we were so damn fortunate that you can't believe it is all the hunting and fishing we got to do and didn't have to go anywhere. Well, we've shot so many shots out of that barn over there it would scare you.

Ranchers considered distinct types of livestock as giving distinction to the whole place. Unusual stock raising gave the ranch a unique distinction which outlasted the stock by generations. A period of history during which a distinct breed or quality of animal was raised was noted as an important part of the description of the place. Likewise, unusual activities with stock were also lasting distinctions contributing to the uniqueness of place:

> They had one of the best herds of Brown Swiss in the nation, we shipped them all over the world. We sent the first Brown Swiss to Cuba, and the first ones to Alaska.
>
> We kept about 150 ponies here for...hell, I don't know...a long long time. We'd have 40 or 50 colts a year. We shipped, uh...god we shipped ponies all over the damn world. We had a standing contract for all of our registered dappled fillies, for $1000 a piece. And what the hell is a calf worth...about 75? So it was a way better business than the cow business, I mean, it was a good move.
>
> He would take his wagon, and he had two or three wagons he had rigged up, and he'd haul the garbage for mother, and he'd hook up his goats and haul it up there to the damn garbage! He was forever hooking some damn thing up, I mean he loved them damn stinking goats.
>
> My folks used to have a pony patrol that they took all over the state. Twenty-four kids that were some of the better ones from the riding class. They did square dances on horseback, they went to the fairs at Havre, Billings, I don't remember, Great Falls...I don't know where they went. ...and in those days there was quite a little trick to hauling that many ponies across the state, you know, they just had a couple of little stock trucks. ...you can see some of the Virginia reels and square dances, and all that stuff that they did.

Viewing their places, and the functions of their places, as unique was a natural outcome of knowing them well. It was also critical to their evaluation of their own families as a constellation of unique individuals, and their understanding of themselves.

Attachment to Place

Ranchers expressed such a deep affinity for their work and place, that they almost equated the place with the self. "My work and life are synonymous... They are about the same thing." They often felt the place represented generations of cumulative hard work and wisdom of the family:

> We're proud of it. It's one good ranch.
>
> ...my grandpa John...I'm glad he didn't buy something someplace else when they had to leave the Musselshell.

It also embodied meanings and kindled individual personal attachment:

> There's a little bit of you in every fence post, every staple that you drive, every nail that you put in...everything that you do is a little part of you.
>
> I love that place...I'd love to be there right now.
>
> I knew that was pretty much what I wanted to do with my life. Live on a ranch. And I got to do it, and not very many people get to do what they want to do.
>
> Being located were you've got all the benefits of life that you'd want, and still have the beauty and the mountains and the good and bad in the weather...I don't know where you'd go anyplace and have a better deal.

Ranchers also expressed an attachment to the work itself. The routines of working with livestock and farming became deeply ingrained in their lives:

> Having grown up here and worked on it. ...There's really nothing here as far as physical structures that I haven't had something to do with. Oh, it's pretty much... I guess in one way it's been the story of my life.
>
> It's just my whole day. I go from farming to clinic, and back to farming, to horses...I'm pretty well encompassed in the whole place here.
>
> It takes a lot of work to keep it up. It's the only thing I've known.
>
> Right around midnight is probably my favorite, because it's the quietest. And I'm out there alone and it's...time just flies. ...And I'm out there 'till about two in the morning. I'm the night lamber.
>
> It's a farm, and it's agriculture, and that's all we've ever known.
>
> [My son] apologized the other day that he didn't have anything for me for father's day. I told him I didn't need anything for father's day as long as he takes me with

> him to help whenever he's going over to work at the L place. I really like to help out whenever I can.

Sale of Land

Attachment to the land itself was deeply held. While the patterns of ownership changed over time, sometimes by choice and sometimes imposed, each loss was accompanied by a degree of conflict or discontent. In general, the land of the farm was considered a financial reserve for retirement by the senior generation, while it was a precious finite resource to the generation which followed:

> When he did it, he thought he was really doing the right thing, because he was going to leave mother with an income, and she wouldn't have to worry about it if something happened to him.
>
> ...farmers haven't had IRAs and all that kind of stuff, and their retirement was based on the land.
>
> You can't keep people from subdividing the land. It's their land. ...There's no way the law can stop you from subdividing what you own.
>
> There's 211 acres sold (audible sigh), uh, when I was in school. Yeah...I didn't know about it, if I had known about it...it was all a done deal by the time I came back from school one semester, but it should never have happened, but it did. But yeah, we had all our hay ground clear up to the back road there.

The sale of land was invariably controversial and emotional. Participants were profoundly influenced by the sale of family land:

> I think the real interruption is when my Dad sold that ground. ...So it's really sad and we really regret -- all of us do -- that they ever did it. But it's just one of those things that you...hindsight's a hell of a lot better than it was then. Yeah, it ruined the ranch, there's no question about it!
>
> You know there was a place that we leased that my father grew up at that was subdivided...and that's been real hard watching that.
>
> The fact that this big chunk of it was sold out has been the big dissatisfaction I've had to deal with for years. It's really hard for me to deal with even now.
>
> I always had the house next door to here, which my father gave me -- that became mine when I got married. I made a small rent from it and could save a little money. But when we really needed some farm equipment my husband decided we should sell the house. We sold it for $10,000 and bought $15,000 worth of

> farming equipment, which we really needed. But I was sorry not to even get a lace handkerchief out of it.

A transaction of thirty years earlier was still the source of deep regret on the part of the present generation of ranchers, who felt a deep attachment to land they had grown-up on: "One time I even tried to see if I couldn't buy it back, at least part of it, because supposedly the part of it [they haven't used] is so full of springs and water tables and creeks and everything that they'll never be able to use it. ...They still won't sell it."

The impending sale of land also caused considerable anguish within a family, especially when the decision to sell was not clearly shared. The concept of letting-go of the land was met with ambivalence by all members of the family:

> We could have sold off parts of it. But we got the place paid for, and we don't want to have to borrow any money on it. But we can just sit here, and if nobody wants to buy it I think we'll just keep it.
>
> If the kids can make a living at it, why fine. And if they can't, why we can trade it and get someplace where they can make a living... In order to do this you have to have a 1031 exchange put together...trade for like property. Otherwise, there'd be no point in selling it, just to pay taxes on it. That's pretty silly, why would you sell a place to give that much money to the government to throw away?
>
> I guess the biggest thing is that considering Dad's had the place listed for sale, and there are some more interested buyers, that certainly causes some emotional stress on my family. What we're going to do, if anything... My family...and the talk of the sale...well that's what we've been talking about for 10 years now.
>
> I'd prefer to stay here but I understand that we really can't. And the new subdivision is on the land that we farmed...I don't think it was more than a year ago...maybe two years ago. But that was our hay field there...I remember it open. It's not very nice.

The current impetus for sale of land was a shrinking margin on cattle, and rapid population growth in the valley. This created a dichotomy between the need of ranches to increase size and volume, while suburban development escalated the value of land out of proportion with agricultural means:

> The way the valley has grown, with its population pressure on agriculture to yield to suburban [development]. It's more difficult for myself and my brother to make a living. So consequently if the place was three times the size it is now, we probably wouldn't be considering selling it.

> Our problem here is when you run as much stock as we do, and farm as much as we do, by the time you get the rent paid it's kind of defeating the purpose. But you can't buy land here...you need to rent land here.
>
> And that's the way it is for everyone, and it didn't used to be that way at all. At the marginal farms the guys have a job at the college being a janitor. They work nights up there and then farm during the day. The smaller places that were marginal have been sold off to development.
>
> Of course we haven't got it sold yet, but that's our intent...to sell it...get out. I'm not going to use it, and it's just miserable. If you had a job so that you could just stay here, and just do what you could on the land that you've got. Well, that wouldn't be so bad. Oh, Jesus! You just can't do it! You could keep about 100 or 120 cows on it. But that's just half of a living, really, for a ranch.
>
> We have [the cattle] over at the P place, which J and my father in law have used for years. It's a lease...it's about the only land that we have left...That they haven't subdivided.

Imminent sale made it very difficult for the family to retain equilibrium and self-identity:

> I guess, the place did satisfy a desire for identity, and now it's probably just the opposite, because we feel like we need to do something that we planned and I think I feel I'm moving [imminently]. If we do sell it then...what do we do, or how do we go? If we move to a different place, I'll go to a place that I didn't build all the fences.
>
> We did buy the land out at T, but right now I don't think there have been any decisions on what we're going to do...or where we're going to go...or if we're going to move out there...or we're going to move somewhere else...or... And that's been a hard thing to be involved with...never knowing, you know. I'd kind of like a little closure, and I'd like to feel more secure.

In general the sale of land which was precipitated by rapid growth in the valley gave ranchers a sense of loss of control of their land and livelihood. As a result it generated animosity toward the encroaching population, whom they felt did not understand agricultural work and life:

> The unmanageable part I think would just be that we can't control people coming in. This is the land that we used to farm, to feed the sheep. And I have no control over any of that. ...We really need some more land.
>
> The only thing that's not beneficial is all the damn subdivisions that are going in that we can't regulate. That's the only thing I have to say that's not beneficial.
>
> They keep coming, so you've got to do something with them. After you get so many of them, why...it's losing it's character as a nice place to live.

Sense of Permanence

Families felt a long-term affinity with their particular locations. Some of those interviewed even expressed a sense that their families had always been there, as if the settlement of the land defined the beginning of their family.

> Most of it is just being around the buildings. My grandparents lived here. Then we lived in the little house while I was growing up. A lot of family calls this home. We have a family reunion every three years.
>
> My grandfather homesteaded...we were just where we always were.
>
> I think I'm the 5th generation, something like that.
>
> I lived there on the ranch after I was married. I've lived there longer than anyone... about 60 years.

Others saw the configuration of the building site almost as a permanent feature of the landscape, which also represented the long history of the family in that location: "The rest of it, with the driveway there, that's pretty much the way it's always been." Stability of the family in a place that each succeeding generation was able to know well was very important. Knowing one place in depth afforded ranchers an opportunity to feel located in differentiated space:

> I guess it's something that I've always been proud of, I'm not sure why, everybody's from someplace. That's something that I've always wondered about -- from the way I've grown up -- what about some people whose parents moved eight times when they were growing up, and they've lived different places. I guess I've always wondered what, if anything, makes them feel different about where they are at the time.

A sense of permanence in location provided a continuous context for family stories and an opportunity to know a place by other means than individual experience alone.

Values

Each informant expressed a sense that their farm place of work and dwelling, and their own lifelong engagements in daily and seasonal routines with the land and livestock

had kindled in them a strong sense of good work. They appreciated the unconscious learning of a work ethic:

> This way of life develops honesty and hardworking people, it cultivates good habits.
>
> The upbringing on the ranch instills a genuine work ethic -- like working 'till the job is done.
>
> I guess [I value] just the effort it takes to keep up work like this.
>
> As an adult, one of those pony patrol kids came to me and thanked me so much for teaching him discipline -- he said it taught him for life. We didn't set out to teach that, but I guess it came along with doing what we were trying to do. You couldn't do a pony patrol and have it not be precise.

From the perspectives of both parent and child, learning certain kinds of work as well as ways of working was a critical part of their up-bringing, and instilled good values:

> The hard work, I think that's very important. Getting to raise my children out here... ...I think that it's important that children learn how to take care of animals, and learn how to drive things, and know how to make things. All of that I think is very important.
>
> I think we always had to work hard, but we always enjoyed it. ...I'm sure we learned a lot by doing it.
>
> We never had big equipment, or really automated, it was always a deal where we got a good job done, but we had to work to do it. ...It wasn't a case of somebody else did it for you or it was given to you. You always earned it, and so you knew what it was all about.
>
> The boys learned about responsibility. Up in the front yard there used to be a whole circle of trees, where we had a pony ring. The boys ran a business giving pony rides. Once they had started, they couldn't stop, because people kept coming back for more rides, so they had to be there day after day.

Conclusion

The settings of the ranches studied were critically linked to the self identity of the inhabitants. Ranchers perceived the patterns of their work as inseparable from the identity of the location. Identity of place and person were so strongly tied that ranchers saw their places as a part of themselves, their families, and their values. The loss, or potential loss

of land by sale was deeply emotional, even when it was accompanied by the prospect of replacement with other land that would prove more economically viable. Ranchers drew sharp distinctions between their identity as a group and the population of subdivision occupants they saw encroaching on their farmland. They perceived a distinctly different identity represented by a suburban attitude toward the land. Ranchers saw their own identity as inseparable from their family land, and their beliefs and values as embodied in their land use and daily work.

CHAPTER 11

SUMMARY & CONCLUSIONS

A place is a piece of the whole environment
that has been claimed by feelings (Gussow 1971, 17).

Introduction

The families interviewed in this study demonstrated that it was a combination of the demands of their work and a localized folklore that formed the basis for their perception of the natural and built landscape. Practical understanding of spatial relationships was formulated by the pressing needs of physical labor and management of the land. They appreciated early choices of farm site, which they recognized were based on the spatial relationships between terrain, water sources, micro climate, and transportation routes. Their intimate experiences with the natural and built landscape, through their daily work revealed the timeless intelligence of early settlement choices. Because they were constantly working the land and livestock, they were acutely aware of the details of topography and the exact condition of the ground as a matter of ordinary management.

The interviews reflected the perception that buildings, while costly, were a flexible asset that could be added or subtracted from the site, and modified without regret. The buildings served the activities on the land. The land itself, however, was a sacrosanct resource, which was not let go without conflict, resistance, or regret within the family. Understanding of site plan organization was extensive at a conceptual level, and in detail. Women tended to express this knowledge as visually conceived, while most of the men

described it in terms of their movements through the landscape of natural and built elements.

Knowledge that was shared between members of the community formed a "regional consciousness" (Ryden 1993, 58) which bound the community together. Stories were important ways of knowing about place, and served to deepen each person's identity with the land. Local and family folklore was handed down by each generation, and enriched the character of the place. Critical knowledge and understanding about crops, livestock, and farming practice were imparted by both informal and formal means within the family and community.

Visual Perception

Visual perceptions were accompanied by schema of shared knowledge and previous experiences that were essential to the understanding of place. There were numerous relationships between physical elements and events that led to multiple and interdependent ways in which places were understood. Visual perception was not heavily relied upon, except in the evaluation of crops, when acuity was remarkable. Gibson's (1966) differentiation theory suggests that perception is learned by progressively developing the ability to discriminate. Therefore attention to nuances is a learned skill, developed gradually as the need for discernment arises. Recognizing the impact of intruding wildlife or weeds on the fields, and the impact of it on the vegetation was an acquired visual ability.

Ranchers often combined their realms of visual knowledge with other sources of learning. Family photographs, for example, served as visual triggers for memory of earlier conditions of the site. Ranchers made visual comparisons between their own places and others in the region that they knew primarily visually, but were interpreted from experiential knowledge. This type of visual comparison was also typical of early

settlers in attempting to choose appropriate land to homestead. Surveyors of the region, beginning in 1868, also relied on visible evidence of productivity in the assessment of soils quality. The earliest settlers interpreted their visual impressions of the area through their experiences and biases imported from the east, which no longer applied in the arid west. Relationship of buildings to topography was visually perceived in combination with cultural knowledge about surface drainage, and historical problems of flooding. Visual knowledge often confirmed information that was perceived by other means.

Interest in visual esthetics of buildings was not widespread, but emerged at one of the three sites as a matter of pride and a reflection of rigorous, disciplined management. This site was the largest and most successful of the three, suggesting that esthetics may have been perceived a luxury. Adding strength to this argument, a male rancher at another site revealed a strong visual awareness of his buildings, although he had maintained them for safety and utility, but not for visual effect. He expressed the sentiment that he had not been particularly successful as a rancher. Visual appreciation of building form and materials was a result of knowing from experience which characteristics led to increased maintenance, and which were more structurally sound.

Fence lines were the visible manifestation of divisions of ownership. More importantly, they represented the demarcation of a sphere of control and inhabitation. One side of the visible line was terrain that was well known and traveled, the other was less well known, and outside of their own influence. Extreme conditions of drifting snow occasionally created striking visual shifts in spatial perception of the landscape as fence posts or small buildings completely disappeared. These events were vividly recalled.

Haptic Perception

The participants in this study relied heavily upon the haptic system of sensing touch, movement, position, sound, balance, and memory of previous experiences. This

perceptual system, which draws upon many sources of sensation throughout the body, is inherently spatial. Multiple somatic, kinesthetic, tactile, and positional sensibilities are combined to form an integrated perceptual system that is based on movement and action in space. The physical work and actions of farming and ranching actively engaged the haptic system.

The major ranching activity of handling livestock involved physical interaction with the animals, requiring alert haptic capacities. It also demanded an understanding of animal behavior and movement. Through the activity of riding horses to work cattle, or driving them in harness to feed, ranchers often commented on the quality of the footing beneath the animal's feet. Participants often noted slipperiness, deep snow, water, mud, and icy conditions. In other words, the rancher considered the haptic sensibilities of the stock.

Ranchers often mentioned a tactile sense of weather in their concerns for the well-being of livestock. Working outside on a daily basis, ranchers experienced the temperature and precipitation firsthand. Difficult weather conditions were not an obstacle to getting work done altogether, although they often determined the nature of a day's work. Ranchers were generally flexible and willing to adapt their activity to perceived conditions.

Changing needs demanded frequent construction or maintenance of buildings, an activity that fully engaged haptic sensibilities. A precise awareness of construction details, structural soundness, and the general condition of buildings resulted more from this type of work than from pure visual observation. Physical action and interaction with the structures were the basis for most knowledge about buildings. Ranchers focused on the uses and changing uses of buildings more than on building form. Again, their awareness attests to their orientation toward activity rather than to visual or formal concerns. The maintenance of fences required extensive physical movement over the

landscape. Years of doing the same kind of work repeatedly provided an opportunity to know and recall topographical details of vast expanses of land.

Detailed knowledge of topography and ground conditions was typical of all those who maintained fences, worked crops, or irrigated. Years of doing similar work in the same fields cultivated an ingrained haptic memory of local conditions across extensive reaches of landscape. The way in which people traveled the ground had an impact on what they perceived, and how they perceived it. For the benefit of their crops they noticed nuances of moisture in the soil, and how deep the moisture was. They intuitively gauged from the amount of rainfall how soon each field would need irrigating. They noticed every high or low spot in a field by differences in moisture or growth, or by the tilting of the tractor as they worked over it. They knew precisely how deep the sub-irrigation was in each field or pasture, and where it varied. They also knew from experience where the rocky areas of ground lay, as they had often spent long hours picking up rocks by hand after plowing. Extensive knowledge of surrounding topography was also haptically explored and understood through child play. Those who grew up at their ranches often had rich descriptions of the environment from a highly tactile and kinesthetic standpoint. Historically, settlers relied upon experiential knowledge of topography and ground conditions to make critical choices about siting buildings. Over time people revised and refined their accumulated knowledge about local conditions based on haptic experience.

Ranchers learned about creeks and other water sources typically from their activities of working the land that incorporated haptic sensibilities. Rivers and streams often presented an obstacle to movement, or required the construction and maintenance of a bridge or crossing. These situations demanded firsthand knowledge of the character of the drainage, its depth, width, and the steepness of its banks. Child play again was a source of considerable haptic knowledge of creeks, as creeks and streams were often a focus of activity. Gravity-fed flood irrigation out of creeks and ditches served to develop

a clear understanding the surrounding topography, because of the direction and velocity of water flow. Additionally, topographical nuances of each irrigated field were understood from years of managing an even flow of water over the terrain.

Ranchers understood the overall site plan of their places in very clear detail. Extensive daily movement between buildings and over terrain allowed them to evolve a complex mental map of their environment, and to understand multiple simultaneous relationships between its various parts. This fundamentally spatial cognitive map was a result of the frequent and repeated movements of daily work throughout the site. Two of the women -- who did not participate full-time in the daily farming or livestock handling efforts because they took responsibility for children -- participated in other related roles within the operation, through which they shared an appreciation for the larger work. The orientation of all three women to the site plan organization, however, was decidedly more visual than haptic.

Because the nature of ranching work has changed very little in generations, the pre-existing organization of the building site made sense to each individual interviewed in terms that they understood. Appropriate proximity of buildings and structures was a major way in which they verbalized their appreciation for the existing layout. Roads, driveways, and paths were recurring references to descriptions of site plan organization, which suggested the importance of movement and circulation to people's concept of spatial organization. This reinforces Gibson's theory of the interdependence of spatial perception and locomotion: "...we must perceive in order to move, but we must move in order to perceive" (1979, 223).

Most of those interviewed described earlier buildings that had existed on the site. According to their descriptions, early configurations of the building site held considerable sway in the evolution of ranches. When buildings seemed no longer in the right place they were often moved. Although the earliest dwellings and structures on the land may

have stood elsewhere on the land, the present building sites were established relatively early in the development of each ranch. The placement of one or two important buildings on the site seemed to guide the placement of all future buildings. This may have been the perception of the evolution of building sites for four reasons. First, the incremental way in which changes usually occurred prohibited large-scale reorganization of the site. Second, there was an inherent respect for early siting decisions, which were often based on previous experience of local conditions on other parts of the site. Third, the cognitive map of each generation established spatial habits that people were not inclined to break by creating fundamental changes to circulation on the site. Lastly, each individual's cognitive map of their present local environment may have been so strong that it guided their perceptions of earlier site configurations, overruling earlier distinctions.

Although moving buildings was not uncommon according to contemporary perceptions, it rarely resulted in fundamental reorganization of the building site. At one ranch where the entire farmstead site was moved three quarters of a mile, the family understood the move to be motivated by changes in the conditions surrounding the site. Paradoxically, the addition of transportation infrastructure -- a new county road and railroad grade -- had made the previous building site far less accessible than it had been before motorized transport. The four buildings were moved to a site that had been established thirty-five years earlier, and they were placed in such a way as to preserve and reinforce the pre-existing order there.

The need to replace a building with another one often motivated the effort of moving it. These actions, again, reinforced the existing site configuration. At one site, for example, at least three different shop buildings -- of increasing size -- stood at various times in the same location. Changes in the type or number of stock raised often precipitated the moving and replacement of agricultural buildings. Shifts in the way that agricultural produce -- hay, grain, or wool for example -- was stored and marketed had a

tremendous influence on building requirements, such as wooden granaries being replaced by steel bins. The relocation of buildings seems to counter the nature of building structures, which are inherently fixed, gravity-laden, and tend to emerge out of the ground as they are constructed. The appeal of these events to spatial sensibilities is striking. The implications of sudden changes in orientation and site plan relationships are profound, and yet the events of moving buildings were never described as remarkable experiences. This is perhaps because each move adhered to the existing order, as a building was moved to replace a demolished one, and new buildings replaced those that were moved. The event of a moved building, then, was not perceived as a major spatial shift.

Buildings were relatively transitory compared to the perceived permanence of the site. As the needs and requirements of the ranch business evolved, the buildings were adjusted to accommodate it. When space was tight on the farmstead building site, older buildings were demolished to make space for new ones. The buildings served the needs of the business first, and very little was spared for posterity. As the character of buildings changed, however, the site tended to retain its overall spatial organization.

There was a prevailing perception that roads played an important part in anchoring the building site historically, as connection with the community was critical to survival. The established point of access into the building site from the road had a stabilizing effect on the circulation and site plan overall. As the make-up of the community using the road shifted from farmers and ranchers toward an urban employed population, however, conflicts arose. Ranchers' attitudes toward the road were often ambivalent. While they felt that proximity was a distinct advantage for accessibility, especially in deep snows, they expressed growing concerns about the safety of moving animals along the road. They experienced numerous conflicts with drivers who did not understand livestock.

Ranchers, both historically and at the time of the study, developed a highly physical and tactile sense of their environment through active engagement with livestock, land, and buildings. Visual perception was usually limited to verifying conditions that they understood primarily from other sources of knowledge. This finding is reinforced by Yi-Fu Tuan's theory that spatial ability is not so dependent on visual cues, but is learned from tactual and kinesthetic patterns and learned movements (1977, 70). Ranchers revealed a strong sense of site plan organization, which they understood from daily repeated movements throughout the site, and from physical work on the interior and exterior of every building, and from working every corner of farm ground and pasture fence.

Social & Cultural Knowledge

Ranchers in the Gallatin Valley also perceived their places in terms of people, events, and history. They accumulated cultural knowledge through both formal and informal learning. By sharing local and community history and folklore, ranchers entered into a community of mutual understanding. They saw their own role, and that of their family and farmstead, from the perspective of this larger cultural framework. The experiences of working together with family, friends, and neighbors were opportunities to informally share knowledge about the region or about farming practice. Formal cultural knowledge was also pursued by individual, self-directed learning.

Ranchers recognized the significance of early siting choices on the farmstead, which had lasting utility. They understood the historical reasons for certain choices of placement or orientation, and generally continued to follow the same timeless logic. The availability of water, sub-irrigated farm ground, and a topographically advantageous building site were major determinants that continued to be important. Knowledge about specific parts of the ranch was accumulated and efficiently transmitted through

generations of farming practice in the same fields. Detailed knowledge of the changes in farming techniques and machinery was a part of every rancher's experiences, and those of their own families. They recognized the way in which evolving technologies and methods had changed the character of work from a group effort to a more solitary one, and had created new demands for shelter of large machinery.

Ranchers often individually investigated their local history, which gave perspective and significance to the family's role in the agricultural development of the region. This learning also placed the individual in history, and was particularly important to the retired generation of ranchers, who had an extensive time perspective of their own place and of the community. Knowledge about larger scale western and national history was also understood by the way in which events had influenced the experiences of the family. Families handed down their understanding of local railroad history especially when the railroad had appropriated family land. The difficulties this caused for access to -- and ownership of -- odd-shaped pieces of land were problems that families lived with for many years. These problems loomed again after the railroads closed, and attempted to sell the land back.

People & Memory

Frequent interactions with other people were an essential part of the life and work of the rancher, and played an important role in their experience of place. Families worked together, usually as a highly cooperative team, but with occasionally uneasy alliances. Each member of the family tended to have a defined role within the larger work that sometimes changed over time. Senior family members were a source of historical knowledge about the ranch and the family. A relative often became a persona that *represented* the place in the view of other family members, because of memorable crops

or livestock that they raised, or major influences they had on establishing or expanding the ranch.

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. Story-telling about memorable events was often repeated, and usually involved a specific person, building, or animal. The anecdotes, like theater, were often either tragic or hilarious. The more generations a family had spent at a site, the more likely they were to rely on stories to explain their understanding of the place. Firsthand memories of events were family stories in the making, and revealed moments of fear, embarrassment, hilarity, or disaster. Recollections about the way work used to be done suggested that the teller perceived a broad scope of technological changes within their own lifetime.

A larger community of people was also part of place knowledge, as friends, neighbors, and employees were often engaged in the activities of the ranch. Employees, for example, were sometimes referred to with a sense of frustration and liability. Historically the larger community of neighboring ranchers, however, consisted of people who shared similar work, experiences, and views. A "regional consciousness," according to Ryden (1993, 58), is generated when geographic location is the primary basis for a shared identity expressed in lore. He elaborates that such local lore becomes the "insider's mental construct" (Ryden, 1993, 61). By sharing a local folklore, then, a community shares meanings associated with place, and a sense of identity is shared among the group.

Conflicts that arose between neighbors usually involved water rights, land ownership, or land use. Heated disputes over water rights cut to the quick of ranchers' feelings about the land, their work, and their community. Neighbors who contested traditional water rights were perceived as lacking integrity, and holding a very different world view. During the last twenty years ranchers perceived increasingly divergent attitudes of their neighbors on land uses, livestock, and wildlife. They saw themselves

struggling to maintain their agricultural production in a community that neither understood nor sympathized with their values. The introduction of competing land use for development in the surrounding community created, in the rancher's view, a contested terrain of ranching in the Gallatin Valley.

Self Identity

Place and work were a critical part of the rancher's personal identity. All of those interviewed expressed the sentiment that their places had evolved to suit the requisite work. Those that grew up on the ranch felt that as individuals they were predisposed to the work, and they suited the work particularly because they were raised in that context. In other words, both place and person were shaped by previous work, and they were mutually reinforcing. They virtually equated themselves with the identity and work of the place, and their attachments were deep-rooted. Satisfaction was attained by seeing the products of their efforts, by making their own decisions, and by feeling in control of their schedule and work. Values were shaped by the habits, demands, and discipline of work.

The stability of the family in a single location played an important part in the perception of belonging to a place. However, Tuan suggests that "while it takes time to form an attachment to a place, the quality and intensity of experience matters more than simple duration" (1977, 198). He proposes that ten years of experience in a place during childhood are not the same as ten years in adulthood. He asserts that haptic experiences of the child are of critical value in evolving sentiments about a place: "the child knows the world more sensuously than does the adult" (Tuan 1977, 185).

Ranchers perceived a sense of permanence in a location after only a few generations. J. B. Jackson proposes that we perceive a "golden age" at the point in history where active memory ends -- approximately our great grandfather's time (1980, 100). While families that had lived in the area for more than three generations knew many

details of their history, they also expressed a general feeling that their families had always dwelt in that place. The sentiment that the family had "always been there" suggested that the settlement of the land in the late 1800s marked either the beginning of the family, or the beginning of the existence of the land. The latter thought fits well with the historic perception of the North American west as a wilderness wasteland waiting to be tamed, and the landscape that was not considered inhabited until it was under the plow (Faragher 1986).

Because of the connection between the individual and the place, the unique distinctions of the ranch operation had a bearing on the identity of the operating family, and how they felt they were perceived by others. Ranchers appreciated the natural qualities of their places -- richness of the soils, availability of water, absence of rocks, or absence of destructive storms -- as virtually ideal, and comparatively unique. They also felt that their work with distinct types and breeds of livestock distinguished them.

Attachments to land were deeply ingrained as a result of years of labor, the labors of family, and the way in which individual identity was tied to place. The sale of land, therefore, was invariably a controversial topic between two generations of a family. One generation of the family would seek to retire on the sale of the land, while the next generation wished to continue farming the home place. Even those who sought to sell their land discussed the idea with mixed feelings. Decisions on the sale of land were more recently driven by the changing economic climate of the valley, and the loss of farming land leases to subdivision development. This pressure created a clear demarcation between the agricultural community and the incoming population, who had little in common.

Conclusions

Participants in this study learned about the rural environment largely through their actions and through a shared narrative, rather than through visual perception. The built context of the farmstead, and the highly manipulated natural environment of farm land was a terrain for repeated movements and tactile physical engagement. Through kinesthetic interaction with the material substance of buildings, land, and livestock farmers and ranchers evolved their highly integrated haptic sensibilities about the nature of the places where they lived and worked. In the words of Tuan, "the feel of a place is registered in one's muscles and bones...It is a subconscious kind of knowing" (1977, 185). Visual attributes were generally of secondary importance to the utility and meanings associated with the environment.

Ranchers interpreted their perceptions and experiences by way of a shared body of knowledge about farming practices, family, and community history. Through a "steady accretion of sentiment" (Tuan 1977, 33) over time, they gained a sense of place in their location from their own accumulated experiences, and from the experiences of earlier generations, which were perpetuated in family lore. The past was kept alive in family stories told for generations. Family attachment to place contributed to individual identity with the place, to the extent that the place reinforced the individual's sense of self. Local folklore and history both played major roles in formulating perceptions of the community context in which each family operated. As ranchers sensed that the changing community no longer shared their consciousness, they felt increasingly isolated.

The shifting value of land in the valley, due to development, was undermining agricultural work from a social standpoint as well as an economic one. A good farmer who respected the worth of the soil from the standpoint of how well it would produce grain, could not understand the mind set of someone who would pave it with asphalt and

divide it into suburban lots. J. B. Jackson asserts that "nothing more clearly shows some of the cherished values of a group than...the manner in which they organize space" (1980, 115). The value system of the ranchers studied was based on the way they made their living, and was reflected in the way they perceived and organized their space. They saw the subdivisions that encroached on lands they had formerly farmed as a representation of an entirely different community of people. Their local experiences with the inhabitants of new development revealed a very different world view, and undermined their own perceptions of place.

The process of learning about rural places in this study perfectly modeled adult learning theory. Following Knowles' (1980) principles of andragogy, participants reflected learning that was experientially based, highly relevant to their lives, and was built on an increasing reservoir of experience. Ranchers experienced a readiness to learn in order to cope with specific problems in their lives or work. Their learning was highly self-directed, consisting of both formal and informal learning, but became more formalized as the need arose for specific knowledge. They acquired knowledge as a means of increasing their competence in their work, and were prepared to immediately apply their learning. The matrix which illustrated participants' perceptual patterns demonstrated individual differences in learning style. Women and men revealed some differences in overall environmental learning style. In general, however, ranchers revealed a very strong tendency to learn through their physical work. They also demonstrated their use of schema through their understanding of site plan as a cognitive map. This points to the importance of their previous learning as a basis for organizing new knowledge.

Recommendations

The visual perception of site plan revealed by the women in the study suggests an additional topic for investigation. The women were by no means dominantly visual in their perceptions overall, but tended to express their perceptions only of site organization as more visual than haptic. This may be related to the point of view expressed by David Stea (1976, 111) that women tend to be appositional in their spatial perception, and merits further study.

Understanding the significance of haptic perception of place is of critical importance to architectural educators for a number of reasons. While this study reveals the perceptual characteristics of only one group, the finding that their spatial knowledge is gained through the haptic system poses new issues for design educators. If other populations also rely heavily on haptic sensibilities, this has broad implications for the way in which architectural and environmental design is taught. Emphasis on visual capacities in design education may be more appropriately balanced with an emphasis on behavioral and experiential sensibilities. If these spatial sensibilities are typical of the untrained beginning design student, then the way in which these students are approached and introduced to three-dimensional design principles may be revised to incorporate their previous learning.

Design and planning disciplines may also benefit from further understanding of how people develop attachment to places. The knowledge that a sense of place is evolved gradually through tactile and kinesthetic familiarity, combined with a knowledge of local history and family narrative, recognizes the limitations on the capacity of the designer. This accretion of knowledge cannot be designed in to new environments, but it may be sensitively recognized in existing settings where intervention is proposed. New design may acknowledge and celebrate the palimpsest of previous experience and activity on the

landscape. Just as the wilderness was not void of inhabitation or meaning before North American homestead settlement, also our open expanses of farm land are not void of occupancy and attachment before the intervention of subdivisions. The methodology of this study suggests an approach to investigating an existing sense of place in order that it may be preserved within a context of controlled development.

The preceding study is, at best, half of the story of rural perception of place in the Gallatin Valley. Ranchers represent a specific group, but other populations and points of view were not studied. The architect-planner may make use of the methodology modeled in this study to investigate the spatial learning and experiential characteristics of multiple local populations, rather than assuming familiarity. Especially when growth or a demographic shift creates conflicting perceptions, all population groups could be well-served by being better understood. According to Yi-Fu Tuan, "a large body of experiential data is consigned to oblivion because we cannot fit the data to concepts that are taken over uncritically from the physical sciences. Our understanding of human reality suffers as a result" (1977, 201).

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APPENDIX

Letter to potential participants.

Interview protocol.

Site notes form.

Máire O'Neill *212 South 5th Avenue* *Bozeman* *Montana* *59715* *(406) 587-4519*

26 March, 1997

Dear

I am a graduate student in the Department of Education at MSU, and I have also been teaching architecture there for the past 7 years. I have done some previous work with the Museum of the Rockies on homestead settlement patterns in the Gallatin Valley. I am currently doing a dissertation study on farms and ranches in Southwest Montana. I'm interested in the ordinary buildings and farm sites which are part of people's everyday lives and work. I'm particularly interested in an individual's recollections of their place over time, and how they have come to understand it through their work. I believe we have much to learn from the straightforward character of rural buildings and places, and the terms in which they are understood. I hope to make this study a useful reference for practicing architects and planners to serve the rural community better.

I was given your name by , who suggested you might be willing to participate in the study. I am interested in your ranch / farm because it is in active production, and I'm told it still has some early buildings.

My study involves several parts: I would first like to photograph and do some drawings of the farm site, in particular the buildings, and perhaps any corrals, working yards, or other working spaces. I would also like to talk with you and your spouse about your understanding of the place where you live and work.

I would need to make at least two visits, one to do the photographs and drawings, and another to talk with you individually for about an hour each, or longer if it interests you and you have the time. I will leave you with a set of black and white photographs to keep as a record of your present farm site, and in thanks for your time.

While these photographs, drawings, and some of your comments may appear in my final dissertation book, to maintain your privacy I will not identify your address or names without your written permission.

I will give you a call in a week or so to see if you are interested in participating. Thank you for considering taking the time.

Sincerely,

Maire O'Neill

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

INTERVIEW #_____SITE #_____
MALE / FEMALE APPROX. AGE_____

0. Do you call your family place a farm or a ranch?

1. How would you describe the **sequence of arrival** at your place to a niece or nephew who had never been here? Begin at the road, and explain what you will see of the ranch from a distance, and next as you move along, describing all of the significant elements. Lead them all the way to the kitchen. Assume you're describing it to them because they live far away in a very different kind of place, and **you want them to understand the place where you live.**

2. Describe the work you do here. Pick **a typical day of work** and describe all that you might do as you leave the house in the morning. Include all of your movements about the place, which buildings or structures you work in, and your contact with vehicles, machinery, and animals.

3. Where is the **place on the ranch that you like to spend the most time?** Why? Can you describe the picture you have in your mind of yourself in that place? Describe all the surrounding elements, the quality of the light, the temperature. Is there a breeze?

4. What is your favorite time of day in the **summer or winter**, when working outside of the house? **Where (outside) do you most like to be** at that time? Can you describe in every detail the picture you visualize? What do you do there?

5. Describe ways in which you've seen the **uses of these buildings change** over time.

6. If you were to **describe the building site** (barn, house, outbuildings, work yard, corrals, and immediate surroundings) to someone who could not be here to see it themselves, how would you describe how it is laid out, and the important parts of it?

7. **Describe how the building site sits in relation to the rest of the land.**

8. Where do you **daydream?** Why? Describe the setting of the picture you visualize.
Do you associate this place with **anywhere else you've visited** or know about?
...with **literature** you have read?
...with photographic or painted **images** you have seen?...**film**?

9. **How does some of the character of this place** and the lifestyle it offers you **reinforce the ways in which you define yourself** as a unique individual?

10. What **parts** or elements **of this place remind you of your own past** or the past of your family?
Can you **describe action or experiences** this place recalls for you that have emotional significance? (Impact on self-concept).

In what ways **does living and working here give you a sense of being a part of the agricultural heritage of the region?**

Can you describe to me some of your **most meaningful memories** of the events that took place somewhere on the ranch, but not inside the house? Describe the whole picture that is in your mind.

Where were your **favorite places on the ranch as a child?** Can you describe them exactly? How did it make you feel to be there?

Do you associate physical elements of existing site to places or buildings you grew-up with?

Do **aspects of the site** remind you of significant things that happened in your past **(positive/negative memories)?** Explain.

11. Describe the **aspects of this place that represent your values.**

Describe the ways in which this setting **suits your personality** and preferences.

Can you describe any **general dissatisfactions** with this place that you may have felt at some time?

Describe any instances of **unwanted disruptions** that have changed the level of reassurance you feel in this place. (e.g. low-flying airplanes; nearby mining.)

How does life in this place **suit you?**

What aspects of the work here gives you the most satisfaction? e.g. working with the animals/farm machinery?

Would you sometimes prefer to be elsewhere? Also farming/ranching? Why?

12. Describe aspects of this place that **make you feel good.**

Do you association this **setting with someone you admire** or have admired?

Does this place **satisfy** a desire for **identity?** How?

13. Describe the ways in which this environment **feels manageable**, or helps you to manage your everyday life.

Describe any instances in which this setting **feels unmanageable**, or gets in the way of your lifestyle.

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

SITE NOTES

DATE _____ SITE NUMBER _____
LOCATION _____
OWNER _____
YEARS LIVG/WRKG ON SITE: _____
GENERATIONS FAMILY LIVED ON SITE _____

TOPOGRAPHY:
MOUNTAIN / ROLLING HILLS / LINEAR VALLEY
RIVER VALLEY / LAKE / PLATEAU

GENERAL VEGETATION CHARACTERISTICS:
GRASSLAND _____
FLOOD PLAIN _____
SAGE BRUSH _____
WOODED _____
OTHER _____

EDGE DEFINITION N / S / E / W :
LAND EDGES _____
VEGETATIVE EDGES _____
WATER EDGES _____
INFRASTRUCTURE EDGES _____
LAND DIVISION EDGES _____
BUILT EDGES _____

SIZE: OWNED _____
PRIVATE LEASED _____
BLM / PUBLIC _____

LAND USES: SEASONAL USE?

_____% LARGE GRAZING PASTURES: _____CATTLE _____OTHER _____
_____% SMALLER GRAZING PASTURES: _____CATTLE _____OTHER _____
_____% PENS / CORRALS: _____CATTLE _____OTHER _____
_____% PLANTED IN CROPS: _____ _____
_____% CRP
_____% OTHER USES: _____ _____
_____% UNUTILIZED

IRRIGATION:
_____% OF GRAZING IRRIGATED
_____% OF CROP LAND IRRIGATED

BUILDING SITE LOCATION:
AT EDGE: N / S / E / W
PROXIMITY EDGE / ROAD: _____
PROXIMITY TO NEIGHBOR(S): _____

RISING PLATFORM / DESCENDING PLATFORM
INTERMEDIATE PLATFORM / ISOLATED PLATFORM
LINEAR PLATFORM / GRADUAL PLATFORM

MAJOR TOPOGRAPHIC FEATURES — RELATIONSHIP TO SITE

AT/NR. BUILDING SITE:

- MATURE TREES _____
- NEW TREES _____
- CREEK / SEASONAL DRAINAGE _____
- OTHER VEGETATION _____
- MAJOR HILLSIDE _____
- OTHER _____

DESCRIPTION OF BUILDING RELATIONSHIPS:

- CLUSTERED _____
- SURROUNDING _____
- LINEAR _____
- DISPERSED _____

HIGH DENSITY / LOW DENSITY

BLDG. SCALES:

- % NEW PRIMARY _____
- % ORIG. PRIMARY: _____
- % SECONDARY _____
- % TERTIARY _____

DESCRIPTION OF MAIN DWELLING: (1)

- LOCATION _____
- FORM _____
- SIZE _____
- ORIENTATION _____
- CONSTRUCTION TYPE _____
- SIDING _____
- COLOR _____
- DATE _____
- CONDITION / USE _____
- ADDITIONS _____

DESCRIPTION OF OTHER DWELLINGS (2) (3)

- LOCATION _____ _____
- FORM _____ _____
- SIZE _____ _____
- ORIENTATION _____ _____
- CONSTRUCTION TYPE _____ _____
- SIDING _____ _____
- COLOR _____ _____
- DATE _____ _____
- CONDITION / USE _____ _____
- ADDITIONS _____ _____

DESCRIPTION OF OUTBUILDINGS:

NAME: ____________________
LOCATION ____________________
FORM ____________________
SIZE ____________________
ORIENTATION ____________________
CONSTRUCTION TYPE ____________________
SIDING ____________________
COLOR ____________________
DATE ____________________
CONDITION / USE ____________________
ADDITIONS ____________________

NAME: ____________________
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NAME: ____________________
LOCATION ____________________
FORM ____________________
SIZE ____________________
ORIENTATION ____________________
CONSTRUCTION TYPE ____________________
SIDING ____________________
COLOR ____________________
DATE ____________________
CONDITION / USE ____________________
ADDITIONS ____________________

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