LOG BUILDINGS IN SOUTHERN BRITISH COLUMBIA

PIONEER ADAPTATION TO HOUSING NEED

IN THE KETTLE VALLEY AND CHILCOTIN

[redacted]

by

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ABSTRACT

Rural building types have been used as cultural indicators in many other studies. This study has examined log buildings as indicators of settlement during the nineteenth and twentieth centuries in the Kettle Valley and Chilcotin regions of British Columbia. This study uses a methodology which exhaustively sampled the log buildings of each study area and recorded the data on photographs and a detailed checklist. An analysis of the data indicated that within each study area the form and construction methodologies showed consistent similarities which may be attributed to the development of local log building construction practices. The log buildings of the Kettle Valley and Chilcotin, when considered together, indicated certain similarities in building type, corner notch type, roofing, and proportional shape which may signify province-wide similarities in log building construction methods. The buildings of each study area had certain specific differences, which may be attributed to local design and personal initiative. This study has drawn qualitative conclusions dealing with form, function, style, the effects of the ethnicity of log buildings, the effects of available time, insight into the builder's personality, and technological

regression. Concluding statements and suggestions for further research have been offered.

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Special thanks must go to my wife, Noeleen, who has been a constant encourager and helper during the numerous difficult times of fieldwork, writing and rewriting for the third time.

DEDICATION

This study is dedicated to those people who enhanced the rural landscape of British Columbia with log built barns, cabins, and houses. These settlers came into unfamiliar regions of western Canada and with little reliance on manufacturing, established agricultural and mining communities which formed the settlement basis for others to follow. Those log builders that succeeded in their pioneering endeavors are recognized and remembered in this study.

CHAPTER I

INTRODUCTION

The settlement geography of British Columbia during the past one hundred and twenty-five years is a geography of intrusion and settlement by outsiders. Their housing needs were pressing as they settled on the river benches or high interior plateaus. The former homelands of these settlers can be traced to the farms and cities of Europe, the mining and agricultural landscapes of the United States, and to the populated eastern regions of Canada. While shelter was a pressing need, sawn lumber, nails, and framing expertise were often not available. In the forested environments of British Columbia the housing demands of the settlers were often satisfied by the use of logs unaltered by the developing technologies of the lumber industry.[1]

The relative recency and rapidity of western North American settlement has produced a history of building with logs that is different from that of regions in the east. Eastern American settlements were more culturally and ethnically homogeneous while those in the west show a melding of styles and cultural knowledge among builders. This melding precluded the development of pure architectural forms. The western log building was usually in-

tended as a short term solution to housing need.

Buildings have commonly been used as a diverse and highly visible cultural indicator by researchers working worldwide in the field of geography. The relationships between buildings and culture were stated strongly by Jean Brunhes when he wrote,

> The earth's covering of human dwellings is a phenomena more geographical, more closely bound to natural conditions, than the earth's covering of human beings itself . . .. Truly geographical demography is above all the demography of the habitation.[2]

Many other geographers, such as Newton and Pullian-Di Napoli, Hart, Kniffen, and Weslager[3] agree with Brunhes by using rural buildings in their investigation as a window on the cultural actions and perceptions of people in many parts of the world.

The research involved in the completion of this study of log buildings emphasizes two aspects of geography. One, settlement geopraphy,[4] which is the study of the form of the cultural landscape and the efforts that people make to deal with the natural environment, and two, historical geography,[5] which is the investigation of spatial and temporal variables as a basis for understanding the evolution of the cultural landscape.

The reader is encouraged to study the glossary and the photographs in the appendix to establish an understanding of the vocabulary and to develop an impression

of the nature of the log buildings studied for this investigation.

Statement of Study

This study will examine the log building as a primary method of constructing buildings which were used in the settlement of southern British Columbia. Using study areas in the Kettle Valley and Chilcotin, log buildings will be located, the elements of their construction recorded, and an analysis of log building types attempted. Several significant factors which were influential in the development of the form, function, and style of log buildings will be identified. This study will add knowledge, provide new interpretations, and clarify the literature in an effort to increase the understanding of log buildings.

Value of the Study

This study is the first work in geography to investigate log buildings in British Columbia. The techniques of building with logs represents the response of frontier need to the available resources when faced with poor transportation and unavailable lumber supplies. It is somewhat surprising that log buildings in British Columbia have not been examined previously.

This study is valuable because:

1. Time is important in a study of log buildings. Log buildings are rapidly disappearing because of the

effects of fire, decay, and agricultural change. Furthermore, there are few written records or photographs documenting the existence of the buildings. It is valuable to record and study log buildings now before more of the buildings disappear.

2. Log buildings are valuable indicators of pioneer culture and contribute to the understanding of that culture. Therefore any attempt to understand the historical geography of British Columbia must make an effort to study log buildings.

3. A study of log buildings contributes to the research base of historical geography,[6] thereby expanding the conclusions that historical geography can contribute to the social sciences.

4. A study of log buildings assists in understanding the manner in which the settler perceived his environment. The pioneer often modified his tradition bound approach to life in order to exist or succeed in British Columbia.

The remaining pages of this chapter will explain in greater detail the four reasons why this study is valuable.

The Importance of Time

Time is a very real consideration in establishing the need for the study of log buildings. Log buildings are generally relics; abandoned or only serving out

their last years of usefulness before being pulled or burned down. Buildings in wood are temporary, and as each year passes, more of the buildings disappear and are lost as primary sources of folk[11] and pioneer information. The rapid loss of log buildings within the study areas was evident when the writer was met with remarks such as, "Log buildings? Aren't many left anymore. You should have come through here five years ago."

In the summer of 1973 a high fire danger in the Kettle Valley forests brought about a forest closure. The Forest Service saw a fire danger in allowing several squatter communitites to remain in the woods during the closure. These squatters used several of the once abandoned log buildings of the area as their homes. The fear of forest fires, plus the desire of local residents to rid the area of the squatters led the Forest Service to intentionally burn many of the original log buildings in the Nicholson Creek area of the Kettle Valley.[12]

Most log buildings are not built on foundations of any kind. The bottom course of logs sits directly on the ground. As these bottom logs decay, the building settles or lists badly until the structure falls over. Some styles of log corner notching do not allow water to drain out of the notches. Decay sets in, destroying the notches, and hence the building itself. Roofs, particularly dirt roofs, often fall into disrepair, collapsing,

and leading to more rapid deterioration of the building.

Farming and ranching in the Kettle Valley and Chilcotin have shifted from diversified agriculture where the horse team was the motive force for farm implements to an agricultural system that replaced horses with large petroleum powered machines. The need for large livestock and feed storage barns and the outlying cabins and barns needed to house summer haying crews became nonexistent. Today, the agricultural systems of the two areas rely less on large multipurpose barns and instead use smaller, single purpose equipment and feed storage buildings. Therefore, the log buildings of the study areas are historical features which will not be duplicated in the future.

No local records, photographs, or mental notes have been kept on the age, form, or history of the log buildings of the study areas. Ranchers have forgotten when they built the large gambrel roofed barn, the local historian did not pay much attention to the log buildings of the region because persons or especially significant events are usually considered more important, and land records do not show building types or dates of construction. The existing log buildings are essentially the one and only record of their own existence; their wooden construction means a lifetime measured in decades. Yet, the buildings are a record of cultural and perceptual decisions that reflect the abilities and successes of the settler. The reasons

behind an individual's method of log house construction are often lost amid a mass of seemingly more significant cultural information. The remaining log buildings are the only substantial information on this ubiquitous, but little studied, initial type of housing for the pioneer.

The sum total of fire, decay, agricultural change, and the lack of records combine to make time an important component of the study of log buildings in British Columbia. It is valuable to record and study log buildings now before more of the buildings disappear.

Buildings and Cultural Understanding

The log building is an important element of the past and present cultural landscape of British Columbia. The use of log construction has been a simple and widespread solution to the problem of pioneer housing.[13] Where forests or stream side groves of trees existed, so spread the log building. For most settlers their log house was intended as a temporary solution to the immediate problem of shelter,[14] yet the type and methods of log construction persisted well past the period of intitial settlement, and in fact, log buildings are still a well used construction type in several parts of the Province.

The cultural geographer has often turned to a study of buildings because they are a cultural thread that leads to the further understanding of a region. Field patterns, land division, aural traditions, and folk practices have

all been used to produce an understanding of the significance of culture, yet no cultural indices have been more illustrative of the region and its people than the buildings built upon the land. John Fraser Hart states,

> Houses are the most important structures in any rural area. The study of house types is a central theme in cultural geography because no other structure provides better insight into the folk culture of an area, yet no other theme is more complex, because the form of the house may be completely divorced from its function.[15]

Unfortunately, there are few studies that have been done in North America that deal with folk housing and material culture. Leach and Glassie state,

> Physical objects and methods used to produce them are termed material culture. Very little has been done in the United States on material folk culture, so this field offers the new student of folklore the opportunity to do some very important work. The best way to learn about material cultures is to find one of its producers.[16]

Furthermore, the conclusions of previous studies form the foundation of new studies. Without the collection of basic research on which to form new hypotheses, the progress of research in folk architecture will be slow. Glassie indicates this with,

> The full answers to material folk culture's questions can come only after many detailed field studies of individual craftsmen, many regional studies of specific items, many local studies of types, construction, and uses have been published.[17]

This study will attempt to rectify partially the shortcomings in basic research that occurs within the

realms of vernacular building studies in North American. In light of the suggestions of Leach and Glassie this study has sought the craftsmen of log buildings, recorded types, construction detail, and uses of the building. Hopefully, other studies will be produced that will help fill in the current lack of data and conclusions which exists with log building studies.

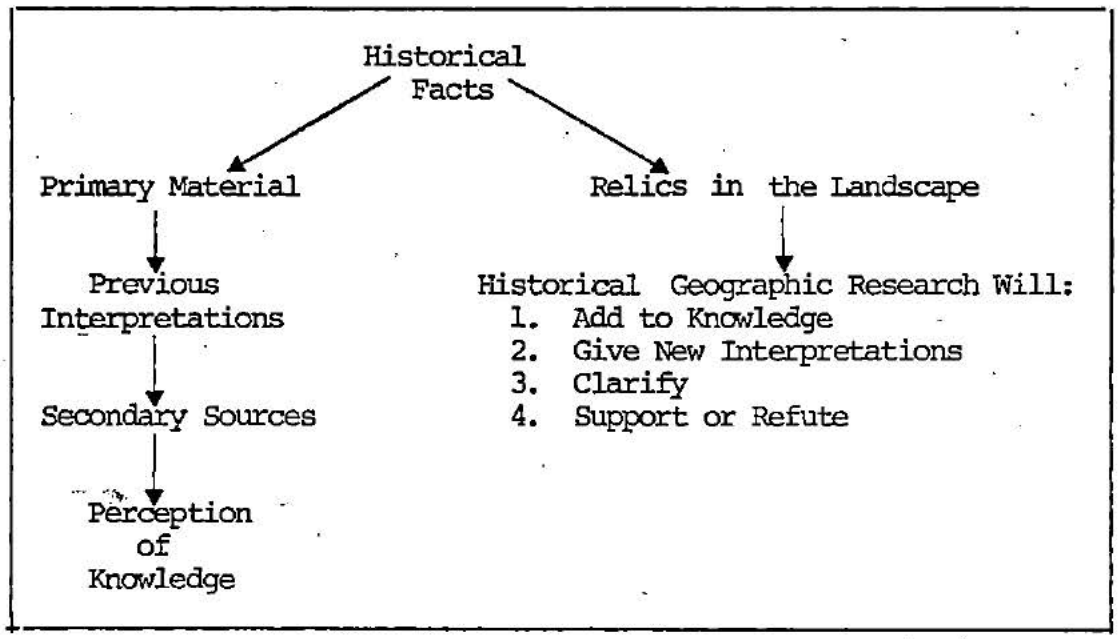
Buildings and the Study of Historical Geography

The historical geographer examines long lived cultural patterns in an attempt to understand the significance of these patterns in both a past and present sense. This study is important because it examines the log buildings as a very early and widespread form of architecture in British Columbia.

The historical geographical importance of this study lies in the fact that it satisfies all four of the elements of "Historical Geographic Research" as listed by Trindell.[18] This study adds knowledge and understanding to the investigation of pioneer housing in British Columbia and the West. The study adds a new interpretation of log buildings and cultural association by refuting in some cases and in other cases supporting various concepts of log buildings as indicated by research conducted in the eastern and southern United States. Finally, clarification of the very limited written material on log housing in the West will be

attempted. A diagram of Trindell's basic research design is as follows:

ILLUSTRATION I



Tradition and Perception of the Environment

This study will attempt to determine whether the frequently used 'ethnic explanation' for the form, function, and style of log buildings can be used as the singular explanation in British Columbia. This study also examines whether a more diverse concept of the log building as being a product of the individual builder working within the constraints and opportunities of his environment provides a better explanation.

The log buildings that were built on the frontier landscape were a result of the modification of traditions and translation of previous experience into a new environment. Technological change was evident in communication,

transportation, and society. Pioneers were more likely to accept new ideas, even at the loss of accepted tradition. In the frontier environment of the German, Scotish, Irish, English, Scandinavian, and American settler the transfer of ideas and building methods occurred. Many pioneers had little practical building experience and were often willing to trade traditionally held house form ideals for the practical knowledge of building with logs. To the unskilled settler a neighbour's building ideas were as good as any, and a melange of several neighbour's house concepts was better yet. So the process of perceptual and traditional change went on, and a settlement landscape emerged. The new landscape dissolved pure, traditional methods and accepted instead efficiency, simplicity, and popular styles.

Summary

Log buildings in British Columbia are a widely distributed pioneer settlement artifact which can provide an indication of the settlement environment under which the pioneer family laboured to work the surrounding lands. The log building's commoness and simplicity has not captured the historical interest of local residents or even the builders themselves. Fortunately, a number of geographers and others in associated fields see value in the investigation of rural building types. Therefore, it would be beneficial at this point to examine the thoughts and

writings of those interested in the study of rural architecture and log buildings.

CHAPTER II

OTHER'S THOUGHTS ON LOG BUILDINGS

A REVIEW OF THE LITERATURE

Introduction

Geographers pursue the investigation of farm and pioneer landscapes because of the cultural relationships that these landscapes convey. We may examine the development of the log building in North America as an important and primary building type which allowed pioneers to occupy new land. It would be valuable at this point to review some of the more general studies and statements relative to buildings and landscape to substantiate the relationships between culture and buildings. Later in the chapter the studies specifically dealing with log buildings will be examined.

Many researchers have stressed the basic importance of buildings and settlement studies in the research and understanding of human culture. J. W. R. Whitehand, discussing "Building Types as a Basis for Settlement Classification",[19] emphasized the value of settlement study in cultural investigation. He indicated that settlement morphology is a key to many other geographical factors, such as diffusion, economic activity, and transportation. The character of an area is symbolized by the form of

settlement. Whitehand has also indicated that while street patterns and settlement geometry have been stressed as a cultural indicator, geometry is not as indicative of culture as building type and typology patterns. B. P. Birch has observed in "Farmstead Settlement in North American Corn Belt"[20] that farmsteads and farm houses are important cultural elements because, "Farm buildings maintain cultural and functional relationships with the total rural landscape."[21] Stewart[22] has carried the relationships between pioneer landscape, farmstead morphology, and culture even farther to include a perceptual or psychological element. He feels that culture, ethnicity, and concepts of past homelands are transferred in part to the new, settled land, "It is in the morphology of material settlement features that the relative strengths and weaknesses of proven values are most vividly reflected."[23]

The form of rural settlement and the types of buildings indicate a functional relationship between land, culture, perception and economy. Weslager has indicated this relationship,

> Like folk speech or folk songs, the residential log cabin and associated log housing, products of cultural tradition and natural conditions, were created by common people to suit their own needs. Like other forms of folk architecture, log housing was a simple, direct expression of a fundamental human need transmitted orally from one generation to another, or from one man to his neighbour, without written directions or professional counsel.[24]

While the house and building types are basic to the understanding of the rural cultural landscape, a distinction must be made between rural buildings of all ages and the more pure, vernacular building. Hart has stated some interesting observations and comparisons between true vernacular housing and the housing emerging from the technological countries after the turn of the twentieth century,

> Throughout human history until the last century or so, and in much of the world even today, most areas have had their own distinctive regional house types, whose size, shape, and style are deeply embedded in folk tradition. As a general rule, the house types of economically more advanced societies are less closely related to their builders, their occupants, and their environments, than those of simpler folk. With a stable society, and given enough time, most regions evolve traditional, vernacular, "anonymous" house types which blend the requirements and resources of the environment with the culture of the people. Increasing mobility and a wider exchange of ideas seems to lead to the replacement of these regional folkhouse types by standardized national types.[25]

As various cultural groups encounter one another, as they would during the settlement of British Columbia, cross-cultural mixing of buildings methods and ideals occurs which prevents cultural influences from imparting mono-stylistic building types onto the evolving rural landscape. The effects of information flow and the receptiveness of the settlers to new methods also works to end the reign of the purely vernacular. New types of buildings emerge that are economically functional and

personally fulfilling for the farmer, regardless of the farmer's background.

A review of the literature dealing with log building in North America produces two major themes pursued by those working in the field. First, there are those studies which develop a knowledge of regional patterns and diffusion of log buildings in North America. Second, much of the available literature also deals with specific styles, types, and methods of log building.

Regionalism and Diffusion of Log Buildings in America

Some authors have examined the movement of the innovation of log buildings techniques from Europe to North America in the 17th and 18th centuries. C. A. Weslager has traced the American introduction of log buildings in The Log Cabin in America.[26] Maintaining that most of the early American house types and construction methods were well developed European types transported to America, Weslager established the European housing situation during American settlement with,

> During the period of settlement in America, Europe was a panorama of different architectural representations. Some of the differences were national or ethnic; others resulted from the physical environment of mountains, forests, lakes and lowlands.[27]

Weslager has attempted to divide the United States into regions and cultures that gave rise to log buildings of various styles. Initially, settlement was restricted to

the coastal area between the Atlantic Ocean and the eastern flanks of the Allegheny Mountains. Growing and moving populations spread parallel to the mountain barriers, and eventually migrated westward over the mountains to find over three million acres of timberland in what was to become Pennsylvania, Maryland, Virginia, Carolina, Ohio, Indiana, Kentucky, Tennessee, and Illinois. This woodland environment, combined with the simplistic and utilitarian aspects of log construction, meant that the diffusion of log buildings was a logical, easy, and intelligent response to housing needs.

In 1638 Swedish and Finnish settlers in the Delaware River Valley established the hewn and round log building in North America. Weslager emphasized that Pennsylvania was the place or origin for waves of log building techniques that were to spread to other parts of the continent. The period 1749-1754 saw 30,000 Germans with their own building techniques arrive and settle in Pennsylvania. By the 1770's the log building was a common method of constructing farm and town buildings for the quarter of a million Pennsylvanians. Widespread poverty prevented the settlers from purchasing and transporting sawn lumber and house framing materials to the frontier. The later influx of large numbers of Scotch-Irish immigrants was very influential in spreading log building techniques throughout all regions of settled

North America. The Scotch-Irish, traditionally well acquainted with migration, and adaptable to new landscapes and cultures, acquired the knowledge and skills because of frontier necessity. The Scotch-Irish settlers, therefore, had to adopt log building techniques upon arriving in North America because their Northern Ireland homeland was not a region of log building.

Glassie, in Pattern in the Material Folk Culture of the Eastern United States,[28] has used log buildings as one of several indices in determining folk regions in the eastern United States. Glassie found that the patterning of folk objects suggested three initial folk regions; the North, the Mid-Atlantic, and the South. In Glassie's work, folk housing of all types of construction was found to be an extremely reliable cultural feature, with log buildings being one of the most explanatory and reliable types of contruction that he studied. Glassie does qualify his regional patterns. He had found that there was not a direct relationship between form, construction, use, and environment when the eastern United States culture regions were compared with the European source regions of immigrants. It is interesting to note that Glassie's more flexible, and probably more accurate, explanation of trans-Atlantic migration of people and house forms refutes some of Weslager's ethnic-based explanations of log housing in America.

Glassie has used house types in "The Impact of the Georgian Form on American Folk Housing"[29] to delimit culture regions in the eastern United States. He notices that insight into the folk traditionalism of the eastern culture regions may be received in part by the termination periods of the use of the Georgian form[30] in folk house types. The North saw the disappearance of the Georgian form in the 1850's, which was an indication that traditional forms were giving way to popular styles. By comparison, the Mid-Atlantic region continued with Georgian form into the 1920's and the Upland and Lowland Southern regions held onto the form to 1945.

Kniffen in, "Folk Housing: Key to Diffusion",[31] has used building forms and types as a method of regional determination. Kniffen produced two major regions, one, New England, and two, Mid-Atlantic. He has found that log construction was prevalent, but it was only used to produce temporary shelter which did not warrant much time, effort, or refinement. Kniffen explains house evolution by the "Principle of Dominance of Contemporary Fashion", which stated, that for a given period there is a popular fashion that greatly influences any cultural product. The New England region was first to come under the effects and changes of popular culture which was replacing the nearly static folk culture: a folk culture that was to persist for decades longer

in other regions, including the Mid-Atlantic.

T. G. Jordan found in "The Texan Appalachia"[32] that by the early 1800's a rather distinctive, but culturally unrefined group of Scotch-Irish settlers had begun to develop a discernable hill land culture in Southern Appalachia. Isolation excluded them from the mainstream of northern and Atlantic coast market economies, while remoteness allowed a distinctive culture to develop. Population growth in this finite and relatively unproductive landscape forced people to look elsewhere for homesteads. These migrants consciously overlooked better quality land because their searching was focused on available land that was similar to that of their previous Appalachian homelands. These hill people first spread to the Ozark and Ouachita Mountains and then to the Texas Hills of central Texas. In doing so they passed through better land, such as Blackburn Prairie, to settle in an environment that offered fewer opportunities, but felt more like home. Today, log houses and outbuildings are still being built in all these highland areas, and the older log buildings show a resemblance to each other when each highland area is compared.

Miller has shown in "The Ozark Culture Region as Revealed by Traditional Materials",[33] that the core of the Ozark culture region was settled by Anglo-Saxons

who moved west latitudinally in search of a similar topography, climate, water supply, and vegetation that would be hospitable to the customs, crops, and tools developed in their previous homeland. Success would be greater for the migrating pioneer in this new, but environmentally familiar, landscape. Miller's conclusion was that the hillmen of Appalachia sought the highlands of the Ozarks and helped spread log building methods.

The above literature has been reviewed because it examined the question of the origins of North American pioneer house builders and their contribution to folk and log housing. It appears that certain immigrant groups, such as Germans and Scotch-Irish, have been more influential than others in developing regions of cultural tradition and house types. Even today, remnants of these groups may be found living in surviving folk housing and early popular house types. It appears that people originating from different places learned similar information and developed similar perceptions of land and life.

When attempting to reach an understanding of the products of culture, we must consider diverse influences other than the simple transfer of culture from one environment to another. We must consider the individual person and artifact, and the observation that some individuals or groups do not perpetually hold onto cultural traditions.

To confuse further a simple ethnic explanation of log building types and patterns, Glassie, in Patterns in the Material Folk Culture of the Eastern United States,[34] has made it quite clear that some material culture, such as the simple English-type barn, is non-regional because it is spatially common and so widespread that it is a folk tradition. T. G. Jordan, in "The Texas Appalachia", makes the rather evident, but unmeasurable observation that physical environment effects material culture and diffusion.[35] Kniffen, in "Folk Housing: Key to Diffusion"[36], has noticed that there are times or places when a deluge of variant or new house types occurs which makes it impossible for the folk researcher to differentiate types or influences discovered in the field. A varied and confusing, yet chronologically similar folk housing pattern may be recorded by the researcher, but the real causes behind specific log building construction methods may be permanently lost to the researcher.

Types of Log Buildings and Their Interpretation

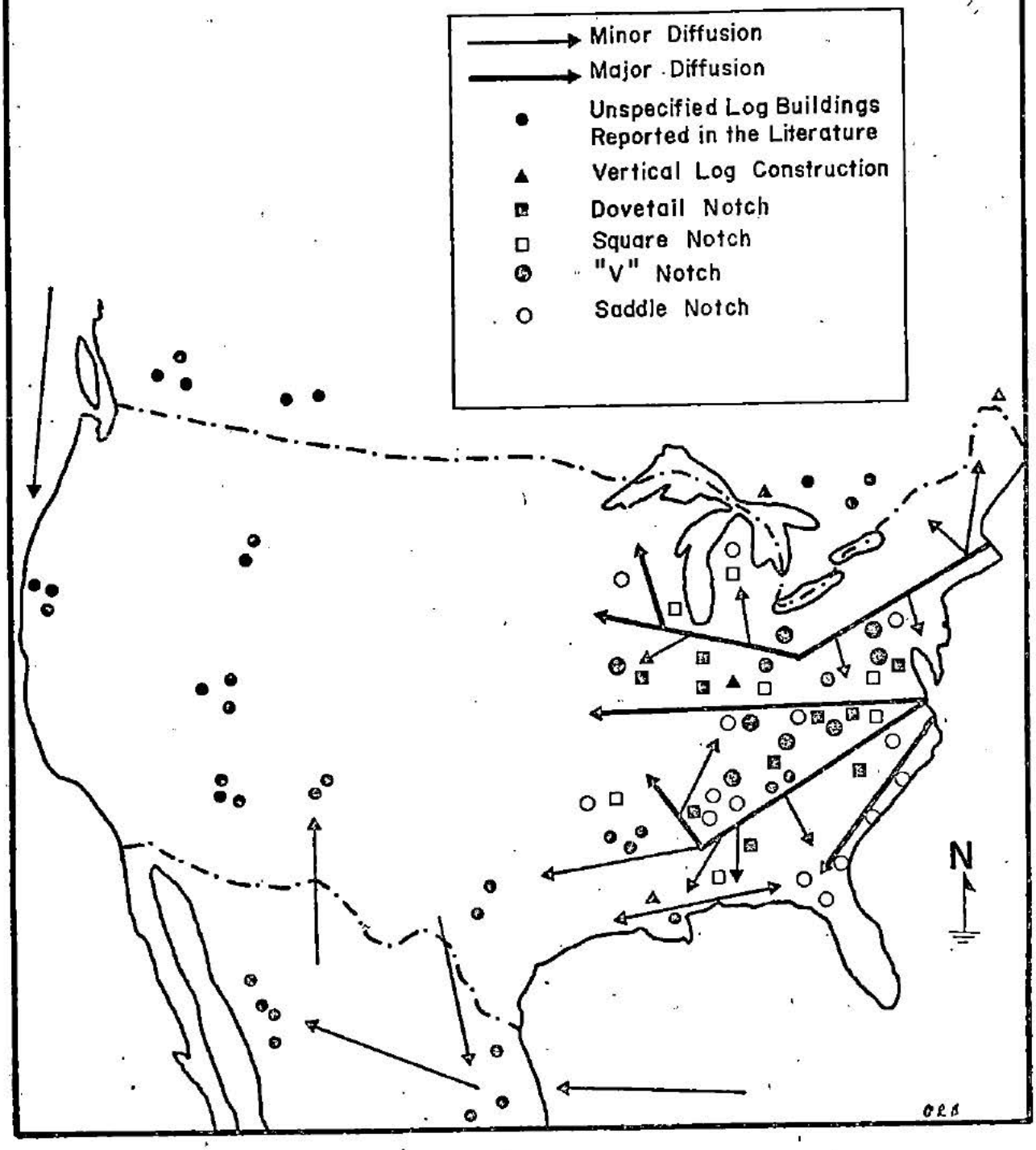
The location and analysis of relic log buildings provides abundant information which may make possible conclusions about skills, local economics, traditional beliefs, and perception of the landscape. A number of investigators have used data collected from log buildings located in such far ranging places as Louisana, Wyoming, New Mexico, Mexico, and British Columbia to produce lit-

erature relative to the specifics of log building construction. The following items reviewed will deal with specific log building or details of their construction. The basic spatial and diffusional patterns described by several writers reviewed in this study have been amalgamated and simplified in Illustration II.

C. A. Weslager has provided extensive information about the diversity and construction methodology in The Log Cabin in America.[37] Weslager indicates that log building, while often assumed to be the primate and crudest type of construction in forested North America, was not the first type of popular construction method. This implies a greater importance to the log building because it diffused across the settlement landscape once this landscape became established. The adoption of log buildings was an improvement over the initial house types, such as wattle and daub (mud and sticks) and rock filled timber frameworks which were previously introduced into North America, but were not comfortable because of the severe winters.

Kniffen and Glassie, in "Building in Wood in the Eastern United States-A Time-Place Perspective",[38] examined the influence of abundant wood supplies on American housing, including a close examination of the various forms of wood building construction. The writers make clear the importance of wood in American frontier expan-

LOG BUILDINGS IN NORTH AMERICA



sion as wood was the most abundant, easiest to work, and most commonly used building material. In 1939 the Rural Farm Housing Survey in the United States found wood of overwhelming importance as a building material. The survey found that 97% of farm houses were wood (93% frame and 4% logs) while 1.8% were brick, 0.5% were stone, 0.4% were earth, and 0.4% were concrete.[39] With such a preponderance of wood construction it was not until more recently that North America developed its own construction techniques. Kniffen and Glassie state,

> It seems safe to assert that no significant method of wood construction employed in America before 1850 was developed here. Techniques were modified, and even perverted, but their European ancestry is certain.[40]

Kniffen and Glassie have observed that a major type of log building variation occurs in the corner notching of horizontal logs. There were two common ways of holding the logs together to form walls, 1) corner notching, and 2) corner posts, (See Glossary and Plates I-VII). In German speaking Pennsylvania the saddle or "U" notch was used for utility and temporary buildings because of the notch's speed and simplicity. Full dovetailing and "V" notches were used for more permanent buildings.

Scandinavians brought to North America the technique of grooving the bottom of each log to fit more closely to the log below it.[41] Englishmen east of the Blue Ridge Mountains developed the square notch on their own as a

simple notch to hold logs together. Corner post construction is well diffused, although the method had relatively few practitioners in any one region. Kniffen and Glassie observed,

> The American practice of notching the ends of the logs has invaded Canada, in some parts fairly recently, but it has by no means replaced the older method (corner posts), which is very much alive.[42]

Forms Upon the Frontier,[43] a series of articles edited by Austin Fife, Alta Fife, and Henry Glassie, deals with folk housing and folk arts in the United States. One of the articles in this publication, R.T. Trindell's "Buildings in Brick in Colonial North America: The Patterned Brick Houses of West New Jersey"[44] has indicated that geographers focused on a study of wooden architecture because of the initial and widespread usage of wood. Trindell stresses that wooden houses have been valuable indicators of cultural diffusion and cultural change.

W. E. Roberts, in "The Waggoner Log House Near Paragon, Indiana,"[45] provides a detailed description of a single log dwelling. The Waggoner house consists of two parts, which were probably built at different times, as indicated by two different types of corner notches. Roberts states,

> One must examine the fabric of the structure itself to see what light it can throw on the date of construction. Often hints of age . .

> are not certain indicators of age, they only give time boundaries outside of which the building could not have been built.[46]

It was eventually learned that the oldest the Waggoner house could be is the late 1830's. The patent for a new manufacturing process that produced the nails used in the building was not filed until the late 1830's.

P. H. Sultz, in "Architectural Values of Early Frontier Log Structures"[47] contradicts several accepted ideas on the development of log housing in North America. The laying of logs one on top of the other was in many ways an intuitive, personal solution to a housing problem. As Sultz has indicated,

> In the early days of search and settlement there was no great concern for re-establishing an eastern American of European architectural style.[48]

Sultz counters the idea of ethnic, European based origins of North American log buildings. His explanation adds diversity and flexibility to the evolution of log housing on a building by building or regional basis because all possible alternatives are open to the individual builder. Log building construction was a family job to be done just like any job. While many geographers and folklorists attempt to explain building variation by national or ethnic origin, by acculturation, or by diffusion models, Sultz would prefer to look for the personality of the builder, his economic status, and the influence of the local environment as the controls of the form and quality

of log buildings. Care, time, and craftsmanship were major factors in the production of a well built and long lasting log building. Inalienable cultural ties to craftsmen in Europe did not exist. The local, indigenous nature of the building materials meant that a building always had a contact or "rightness" with the landscape. Sultz states that the importation of undifferentiated building materials brought an end to folk architecture. What might have been a more significant development of folk architecture was destroyed in its infancy by manufactured materials.

Glassie's Pattern in the Material Folk Culture in the Eastern United States[49] is primarily concerned with the diversity of material culture and the indication of cultural regions that material items may lend. While regional understanding is stressed in this volume, the student of log building construction would do well to refer to this work because of the excellent pen and ink drawings of log building types and construction detail.

The barn is studied as a basic diagnostic component of the rural landscape in Hart's The Look of the Land.[50] Hart states, "Barns are the largest, most impressive, and probably the least understood structures on farms."[51] Hart has found that a comparison of form and function of American and European barns yields many similarities that indicate their mutual heritage. In tracing the development

of the barn in America, Hart found that early American barns were essentially the small, rectangular European barns with a central grain threshing floor and grain storage at one or both ends. Settlers found that hay was a better food than grain for American livestock and so the barn had to be made larger to hold the larger amount of hay needed to carry livestock through the winter. He explains that German settlers brought and partly disseminated both barn technology and log construction, but that the Scotch-Irish were the most influential immigrants in adopting and diffusing German log building knowledge and barn forms. Barn roofs relate more to the age of the barn than to culture groups. The simple gable roof is the oldest, the most simple to construct, and the most uncomfortable to work with because of cramped headroom along the eaves. The gambrel roof started replacing the gable roof during the end of the First World War. The major advantage of the gambrel roof was more usable space at the eaves, although the construction of this roof design was more costly in both time and materials. The Gothic roof style replaced the gambrel style in the early 1940's. Today, barn design is a product of agricultural technology and pre-fabricated building manufacturers; any relationship to the vernacular is long since lost. For Hart the diagnostic value of the barn rests in a knowledge of its evolution, diffusion by various culture groups, and the

chronological detail of certain design features.

Whether we are concerned with log construction or other building materials, Hart sees great relevance in the study of farm buildings and house types. He states,

> A house, to a far greater degree than any other man made structure, reflects the whims and fancies of the man who built it rather than the function for which it was built. Despite some outstanding pioneering work in Europe, North America, and other parts of the world, the geographic study of house types is one of the most difficult, but mandatory research areas in contemporary cultural geography.[52]

Hart gives a warning to the enthusiastic, but perhaps hasty, researcher interested in folk buildings and their relationship to culture,

> A consideration of the relationship between building material and local environment must be wary of entrapment by the Doctrine of Retrospective Inevitability. "With the Settlement of North America," asks Emrys Jones, "what was more natural than that use should be made of the timber which had to be cleared even before crops were grown?" What actually was more "natural", of course, was that the Englishmen who came to North America would keep right on building the same kinds of half-timbered wattle and daub houses they had been building in England . . . the construction of log buildings had to wait the arrival of German settlers who were accustomed to building entirely in wood.[53]

The relationship between European and American architecture is indicated by Glassie and Leach in A Guide for Collectors of Oral Tradition and Folk Cultural Material in Pennsylvania.[54] The low, log barn of the Pennsylvania Dutch settlers resembles very closely the traditional patterns developed in Europe and carried to those areas

where the Pennsylvania Dutch settled in America. The low barn (single or multiple pens) was adopted by British settlers and was built without the aid of plans or architects. The concept of this barn type was carried in the minds of European barn builders for generations before being imported to America. Such folk material is simple and functional, quick to build, and yet is very strong.

Jan H. Brunvand, while more interested in oral folk traditions in A Guide for Collectors of Folklore in Utah,[55] has provided conclusions dealing with the basic origins of cabins in America. Usually, they were one and one-half stories high, rectangular in shape, built as a single unit with a gable-end chimney and with their origins ultimately going back to English and Scotch-Irish cottage types.

Stewart's "The Mark of the Pioneer--Cultural Conservation and the Farm Dwelling"[56] indicates that the house is the most common and strongly held element of material culture. The house is the "first line of defense" and a symbol of security and familiarity for the pioneer immersed in a new environment. The time and energy required in the construction of the house is substantial, often much greater effort than just that necessary to provide snug, workable shelter.

> The resultant structures, fitted in design and function to traditional land use systems and environmental pressures, are usually distinctive but may be grossly out of phase with the local context.[57]

Stewart uses the example of the roof on a pioneer house. While it may be built of local materials, the form, pitch, overhang, and decoration must meet and pass cultural judgments. More pitch could aid runoff in a new, humid pioneer environment or more overhang could keep out the searing afternoon sun, but cultural resistance does not allow improvements on traditional cultural forms to come easily. This cultural reluctance may be somewhat tempered in a new and demanding environment by several factors.

> In frontier settlement the exercise of cultural choice is commonly eroded by hardship, restricted by the lack of traditional materials and tools, and frustrated by the diffusion of time and energy in productive pursuits.[58]

Some geographers have chosen to study the log buildings of a particular area, rather than approach the topic in a generalized manner such as Hart, Glassie, and others have chosen to do. The detailed studies of the log buildings of an area yield specific data and concepts that provide insight into the natural environment and the cultural precepts within which the pioneer operated. The information acquired in the specific study may, in certain cases, be applied to other areas.

A very fine piece of investigative research was accomplished by Winberry in "The Log House in Mexico".[59] Winberry has determined that log housing in Mexico was first mentioned in 1755. Although pre-Columbian Indians used wood in house construction, it was for roofs and

palisaded walls made of planks. Notched log techniques in the United States was introduced by German settlers in Pennsylvania in the 18th century, and was spread by Scotch-Irish. The log house probably spread to Texas before 1800 and to New Mexico by the 1820's. Log construction techniques could not have come to Mexico originally from the United States because the written reports of log housing in Mexico occurred well before those in Texas. Winberry has postulated that the 1536 importation of German miners was the source of innovators for log housing in Mexico. Winberry maintains that these miners brought into central and southern Mexico the idea of log building, with mine workers and their decendants carrying the techniques to other parts of Mexico. Northern Mexico received log construction techniques by later diffusion from the American Southeast, or more probably Texas and New Mexico in the early 1800's.

The work of Newton and Pulliam-Di Napoli, in "Log Houses as Public Occasion: A Historical Theory",[60] used data from over seven hundred Louisana log houses to show that, 1) standard concepts of house types are inadequate, 2) standard concepts of house sizes are incorrect, 3) quantification is helpful in understanding log housing, and 4) some intuitive theories provide accurate descriptions of landscape change. The reasoning of Newton and Pulliam-Di Napoli fits well with the findings presented

in Chapter IV and Chapter V of this study. The authors found that culture does not "determine" the form of houses in some near mystical or strict causative manner. Furthermore, form cannot realistically be explained by any complicated theory when a more common sense explanation would suffice. For instance, as explained by Newton and Pulliam-Di Napoli,

> Human life is dependent. Many possibilities go unactualized because of this dependence of each man's life upon historic opportunities, such as available building materials or the particular neighbours who can help build a house. Men normally draw their ideas from other people, merely because few men examine themselves and their surroundings from a dispassionate, inventive point of view; the strain of continuous inventing, let alone the waste of time, would exceed anyone's tolerance. Each, then, chooses from what his fellows do for form of house, manner of construction, and such matters. Historic, frontier communities offered men a limited variety of choices in dealing with such mundane concerns as house building.[61]

The writers indicate that the combination of personality, coincidence, and local environmental opportunities greatly affect log housing.

Gritzner's article, "Hispano Grist Mills in New Mexico,"[62] has found northern New Mexico to be a productive folk study region because of the apparent isolation and cultural traditionalism which has produced a tenacious hold on older beliefs and practices. Gritzner has chosen to study 18th century water-powered log grist mills. The grist mills are built exclusively of logs; stone, adobe,

or sawn lumber were not used. They are crudely built and approximately four meters long and four meters wide. The mills are simply notched and without chinking, indicating little technical skill or concern for the longevity of the buildings. The haphazard notching also showed more than one builder contributing to the construction of the building.

Other researchers have noticed the log construction of the grist mills and have attributed the mill's introduction to American sources because of the use of horizontal log construction. Gritzner argues that the horizontal water wheels were used long before Anglo-Americans were in the area. He maintains that the water wheels are of Spanish/ Mexican introduction.

The available information on Canadian log buildings and log building methods is both scarce and incomplete. The interest in tracing folk practices and folk materials in Canada seems non-existent when compared to the growing number of geographers and folklorists in the United States who have set out to record and analyze the folk relics of the historical landscape.

One of the outstanding works on the diversity of the log building in western Canada can be seen in Clemson's Living With Logs.[63] While this is a non-academic, general interest photographic booklet, it does show, and partially explain, many of the types of buildings and methods of log

construction as they occur in British Columbia from the Kootenays to Barkerville. The book indicates that there is a cultural difference among the log buildings that were spread across the Province's agricultural and ranching landscapes. It is unfortunate that a writer with Clemson's experience in vernacular architecture could not do a more complete job of explaining construction methods and ethnic/cultural influences. The buildings resulting from settlers of Scandinavian descent are shown to be special in their quality of design and construction. Clemson has capsulized the log building history of British Columbia by stating,

> For a hundred years the building of log houses flourished throughout interior British Columbia, and a few of the buildings existing today can look back more than a century to the day when their bottom logs were skidded out of the bush. Many more would still be standing if their owners had been interested enough to patch the roof or repair the foundations, for neglect of these, however sturdy the structure, brings decay and inevitable ruin. Many early cabins, built without foundations, slowly settled, lowering the doorway to an awkward height in the process. But the cabins were not always intended for permanent use. The backwoods settler built his cabin in a hurry, intending it as temporary shelter until he could get around to building a real home, which would probably be a fair sized house, often of hewn logs. The old cabin would then serve as an outbuilding, and if it happened to have a dirt roof and lacked a foundation, it would quietly decay and finally be dismantled to make room for a modern building, unless spared for sentimental reasons.[64]

Rempel, writing in his excellent volume Building With Wood, and Other Aspects of 19th Century Building in Ontario,[65] has presented some of the most detailed work

relative to Canadian log buildings. Only a portion of the work deals with log building, yet the photographs and text clearly indicate the range of construction techniques that existed in the log buildings of Ontario. Rempel indicated that the pioneer was often involved in a trade-off between those techniques which required the least amount of time and effort and those techniques which were most aesthetically appealing. The author discusses the worldwide and Canadian history of the log building. Rempel's research indicates that the most common log building size was twenty feet long and sixteen feet wide. These measurements produce a length/width ration of 1.25,[66] exactly that which was most frequently found with the log buildings recorded in the Kettle Valley and Chilcotin study areas (see Chapter IV). Rempel has found that the British military establishment brought many expert woodworkers into Upper Canada and they probably contributed to the pool of knowledgable Canadian log house builders.

Kenyon reports in "The 'Old House' at Albany"[67] that even today a building of massive hewn log timers can be found on Albany Island. Archeologists had encountered rumours that an old fort had once existed at Albany River. Diggings around the area produced the remains of horizontally laid squared timbers. The builders used long, hand wrought spikes to fasten the mortise and tenon joints of the logs together. The fort was 85 feet by 100 feet, with

two central chimnied huts and four corner Blockhouses.

Wilson, commenting on the stone houses of Quebec in The Beautiful Old Houses of Quebec,[68] has clearly stated that the first buildings of Quebec were not log buildings, but rather wooden framed houses with stone infilling between the framing. These Norman settlers, although from a part of Europe with a historical precedent of log housing, built with stone in Quebec. It was not until later Scandinavian settlers established log housing that the technique became an intregal aspect of the Quebec repertoire.

In Building With Logs,[69] B. Allan Mackie has contributed in a small way to the limited Canadian sources on the historical or geographical aspects of log buildings. While Mackie is a well known teacher and practitioner of log building techniques in British Columbia, he has devoted a portion of this log building manual to the cultural and historical basis of log buildings in Canada.

The remaining sources of Canadian information on log buildings are contemporary works extolling the nostalgic or energy saving virtues of log housing. Hunt's How to Build and Furnish a Log Cabin,[70] Dunfield's Log Cabin Construction,[71] plus other similar books may go far in aiding the weekend pioneer, but are of little value for this study. The Hudson Bay Company magazine, "The Beaver", often shows photographs of lonely, wind-blown trading outposts with their sturdy log buildings, yet the publication does little

to explain the types, sources, construction or methods of the log buildings utilized by the company. Various travel booklets depict the quaint log house or ranch outbuildings, but here again little information of substance is provided for the eager researcher.

Overview

A literature search of geography, folklore, and other related fields indicates that very little research has been directed towards the study of log buildings. The investigators that have written on the subject have stressed, 1) the importance of relic buildings in defining past cultural patterns, 2) the diffusion of log building types and methods, or 3) the need to study specific types of buildings in certain areas. Unfortunately, there is no complete work on this most basic North American building methodology. Furthermore, the available sources of information on Canadian log buildings are rare, with the only acceptable work being Rempel's Building With Wood and Other Aspects of 19th Century Buildings in Ontario.[72] The best and most complete work that can be found is Kniffen and Glassie's "Buildings in Wood in the Eastern United States-A Time-Place Perspective."[73] This article's map of the distribution of horizontal log notching methods[74] represents an initial effort at displaying in a spatial context the location of corner notching methods in the eastern United

States. So, this one article, plus some parts of Glassie's various books and articles, plus the efforts of Hart, Rempel, and a few others provides the major part of the literature on the methods, diversity, and distribution of log housing in America. The temporary nature of wood means that as time goes on there are fewer and fewer examples of log buildings remaining from which to construct even a sparse spatial, regional, or diffusional explanation of the development and spread of log building knowledge.

The following chapter will explain the methodology selected for this study. The method involves the collection and analysis of detailed field data which is used as the basis from which to draw broader conclusions.

CHAPTER III

METHODS OF THE STUDY

It is clear from the preceding review of the literature that several studies have used a variety of approaches to examine rural building types. This study uses the following research plan around which to organize library, field, and writing activities:

Library Study → Study Area Selection → Locate and Record Log Buildings → Collate Data → Draw Conclusions

This chapter will deal with each of these research activities in turn.

Library Study

It could be seen clearly in the literature review that very little information exists relative to a study of log buildings in British Columbia. A thorough library search revealed a few studies that had been conducted in various parts of the United States. These studies took the form of the generalized study. No detailed study of log buildings in general nor any study of log buildings in British Columbia could be found which would act as a model around which to form this study.

Selection of the Study Area

The location and study of remaining log buildings is the key to a productive investigation of the geography

of the log buildings of British Columbia. The prospective researcher has one of two options to pursue. One option is to survey very large areas (the large scale research plan), e.g. Vancouver Island, the Interior Plateau, or the Peace River Country with an examination that records the obvious log buildings in an effort to derive large scale patterns of construction methods. A fine example of the large scale research plan is Kniffen and Glassie's "Buildings in Wood in the Eastern United States". The second option is to locate a small, productive study area, such as the Kettle Valley or the Chilcotin River from which an in-depth, exhaustive examination of log buildings can be produced. This is the small scale research plan. The resulting conclusions from a small scale research plan would pertain only to the specific study area; broad scale regional or provincial conclusions could only be inferred.

This study follows the second option because it is more systematic and allows for a more detailed examination of each building. This method also encourages interviews with local informants, which gives the researcher valuable insight into the material culture of the study area.

The geographer uses field sites as the cultural laboratory from which to extract information and test hypotheses. The selection of suitable study area was dependent on several criteria. First, the area should

possess existing log buildings that would yield information relative to this study. Second, the potential study area should be isolated from urban encroachment to insure that the remaining log structures are numerous and are a remembered part of the local historical development. Third, the study areas should be spatially separated from one another to enhance possible diversity between the log buildings of each area. Fourth, the physical environment of each study area should be different from the other study areas so that the influences of the physical environment may produce as much variety as possible. Fifth, the study areas should have different economic histories.

Through library investigation and previous personal experience three potential study areas were selected: 1) an area south of Kamloops, which proved unacceptable, 2) the Kettle Valley of southcentral British Columbia, and 3) part of the Chilcotin Plateau lying between Williams Lake and Alexis Creek. Illustration III shows the realtive location of the Kettle Valley and Chilcotin study areas used in this study.

The Kamloops study area was found to be unacceptable when the five study area selection criteria were applied. This area did not yield a sufficient number of log buildings during the initial survey period. After travelling fifty kilometers on back-country roads only nine log buildings were found. Furthermore, the buildings were widely separated from one another on isolated ranch-lands, with the residents seeming to know little about these local log buildings.

Both the Kettle Valley and the Chilcotin Plateau fit well into the criteria established for selecting study areas. In total, the two areas yielded 168 log buildings, with a density great enough to make field research productive. It was noticed that log buildings were frequently found along the main traveled roads, and with the assistance of local residents many log buildings situated along the more obscure roads and trails were also located. The final tally indicated buildings of all types, construction qualities, and ages.

The two study areas are well isolated relative to the major centres of British Columbia development. The internal road systems of both areas rely heavily on maintained gravel roads as the main transport network, with rutted trails suitable for four-wheel drive vehicles or hiking very often the norm. Both study areas flank roads which do not serve as links between large or important

urban centres. This insures low traffic volumes and increases the effects of isolation. The Kettle Valley and Chilcotin have little urban development to disrupt the vernacular pattern of the log buildings. The agricultural activities have been able to expand and carry out many of their operations without destroying the log buildings. The non-urban and static nature of the cultural environs of the study areas insured a less transient resident population with an enhanced knowledge of the local area. The "old timer" was an important source of information.

The two study areas are spatially separate from one another, which is considered desirable to reduce redundency in historical forces, settlement geography, and environmental factors. The Kettle Valley is 590 kilometers east of Vancouver, while the Chilcotin Plateau is 550 kilometers north of Vancouver. The separation in study areas resulted in two distinct landscapes with related, but separate, historical geographical factors affecting the nature of the vernacular landscape.

The physical environments of the study areas are different from one another. The Kettle Valley is a narrow, meandering river valley with steep, conifer covered slopes rising 200-500 metres above the cultivated river benches. All agriculture is restricted by terrain to the river benches, except for grazing on the rolling lands of the Bridesville area. Originally, mining in the

late 19th century, and presently logging, comprise the activities which in the past or currently use the steep side hills. The Chilcotin study area has open, rolling hills with mixed coniferous forest and grasslands covering that afforded the settler a very open and accessible countryside. The productivity and vastness of the grazing lands encouraged ranching.

The Kettle Valley grew out of placer and minor hard rock gold claims that flourished and died in the 1860's and 1870's. Later, irrigated fruit growing on large farms inappropriate to the physical limitations of the land and the realities of transportation developed by British remittance men who brought capital into the Valley. Eventually, the events of World War I brought an end to this. Ultimately, ranching, logging, and a railroad rationalized the economic development of the Kettle Valley. Conversely, the Chilcotin grew with a developing ranchland economy without the large scale injection of capital from settlers or the get-rich-quick economics of a mineral based economy. The Chilcotin lacked the rail and excellent wagon road system of the Kettle Valley, and so was destined to be even more isolated and dependent on local resources and intiative for their existence.

The two study areas chosen meet to one degree or another the five study area criteria of:

1) abundant log buildings

2) isolated location with little urban encroachment and a knowledgeable local population

3) spatial separation of the study areas

4) different physical environments

5) different economic histories.

From the criteria established, the study areas were acceptable. An examination of historical publications and popular travel information prior to beginning fieldwork further substantiated the historical and present day existence of log buildings in the chosen study areas.

Locating Log Buildings and Recording Field Data

A thorough study should have an organized method of locating and recording field data. Three types of information were collected:

1) Specific data pertinent to each building

2) A photographic record of each building

3) Interview information relative to the log buildings in each study area

The detailed nature of the filed data made the use of a checklist imperative to avoid omissions of information, which would make the subsequent interpretation of the data more difficult. A field Site Checklist (see Illustrations IV and V on the following six pages) was devised to quickly, completely, and uniformly collect and record information about each log building. The Checklist was

Illustration IV

Date:

FIELD SITE CHECKLIST

Log Buildings in British Columbia

Site Number _____

I. LOCATION:
Region:
Relative Location:
Road or Highway:
Map Title and Scale:
Building Location (lot number, military grid):
Comments:

II. PHOTOGRAPHS:
Film Type and Roll Number:
Photograph Numbers:
Indentifying Characteristics of Building or Site:
Comments:

III. CHARACTERISTICS OF THE AREA:
Topography: valley plateau hilly mountainous
Geology: intrusives volcanics folded sediment alluvial
Vegetation: coniferous mixed forest grassland sagebrush
Present Land Use: range agriculture forestry mining recreation
Past Land Use: range agriculture forestry mining
Accessibility: excellent good poor very difficult
Comments:

IV. GENERAL BUILDING CHARACTERISTICS:

Type of Building: house cabin barn shed store commercial

Present Use: residence storage unused abandoned

Age: 1870-1880 1880-1890 1890-1900 1900-1910 1910-1920

Age Determination: local inquiry written records land survey

State of Preservation:

Comments:

V. SPECIFIC BUILDING CHARACTERISTICS:

Floorplan and Dimensions

Log Arrangement: horizontal vertical

Log Finishing: bark on bark off hewn, one side fully hewn full dovetail saddle notch (top, bottom, both)

Roof Type: gable hipped gambrel single pitch double pitch

Roof Materials: shake shingle earth duroid metal

Chimney: internal external middle end location

Foundation: none logs rock

Other Specifics:

Rectangularity: $\frac{\text{length}}{\text{width}}$

Comments:

VI. ETHNICITY:

Ethnic Groups Represented in Region: English Irish Dutch Scottish Norwegians Germans Russian French

Reason for Settlement: mining agriculture cattle ranching group settlement other _____

Builder:

Builder's Ethnic Origin:

Generations of Builder's Family in North America:

Sources of Ethnic Information:

Comments:

Illustration V

Date: June 14, 1976

FIELD SITE CHECKLIST

Log Buildings in British Columbia

Site Number 1

I. LOCATION:

Region: Kettle Valley

Relative Location: Rock Creek, across from Rock Creek Hotel

Road or Highway: Junction of Highway 3 and Highway 33

Map Title and Scale:

Building Location (lot number, military grid): Lot 352

Comments:

II. PHOTOGRAPHS:

Film Type and Roll Number: Pan X - Roll #1

Photograph Numbers: 1

Indentifying Characteristics of Building or Site: Narrow Building

Comments: Photo #1 - General view of the east end of the building

III. CHARACTERISTICS OF THE AREA:

Topography: (valley) plateau (hilly) mountainous

Geology: intrusives (volcanics) folded (sediment) alluvial

Vegetation: (coniferous) mixed forest (grassland) sagebrush

Present Land Use: range (agriculture) (forestry) mining recreation

Past Land Use: (All) range agriculture forestry mining

Accessibility: (excellent) good poor very difficult

Comments: Owner lives in newer white house 200 m. to west

IV. GENERAL BUILDING CHARACTERISTICS:

Type of Building: (house) cabin barn shed store commercial

Present Use: (residence) storage unused abandoned

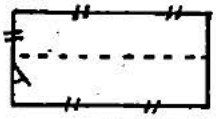
Age: 1870-1880 1880-1890 1890-1900 1900-1910 (≈ 1860) 1910-1920

Age Determination: (local inquiry) written records land survey

State of Preservation: Good, the building is presently used as a Residence

Comments:

V. SPECIFIC BUILDING CHARACTERISTICS:

Floorplan and Dimensions  6.8m x 12.3m

Log Arrangement: (horizontal) vertical

Log Finishing: bark on (bark off) hewn, one side fully hewn full dovetail saddle notch (top, bottom, both)

Notch type = ("V" notch)

Roof Type: (gable) hipped gambrel single pitch double pitch

Roof Materials: shake shingle earth (duroid) metal

Chimney: (internal) external (middle) end location

Foundation: (none) logs rock

Other Specifics:

Rectangularity: $\frac{\text{length}}{\text{width}}$ $\frac{12.3}{6.8} = 1.8$

Comments: The chinking in some parts of the building is mud while at other parts cement is used. Thin wooden strips are nailed under the chinking to help hold it in.

VI. ETHNICITY:

Ethnic Groups Represented in Region: English Irish Dutch Scottish Norwegians Germans Russian French

?

Reason for Settlement: mining agriculture cattle ranching group settlement other _____

Builder:

Builder's Ethnic Origin:

Generations of Builder's Family in North America:

Sources of Ethnic Information:

Comments:

divided into six sections:

1) Location- This section recorded the map sheet (1:50,000 scale), relative location from road junctions or towns, legal lot number, and road name or highway number.

2) Photographs- This section recorded the film type, the roll number, the frame number, and any identifying features to prevent the mis-identification of any photograph.

3) Characteristics of the Area- This section recorded the physiographic and vegetative environment, plus the past and present land use.

4) General Building Characteristics- This section recorded the type of building, its present use, age, and the source of the age determination.

5) Specific Building Characteristics- Recorded a floorplan diagram showing approximate dimensions, door, window, and roof line location. Also notch type, roof type and materials, chimney, and building foundation information was recorded.

6) Ethnicity- This section recorded the ethnic group which the builder belonged to, those ethnic groups represented in the area, reasons behind the settler's choice to settle in this area, and the source of ethnic information.

Most of the pertinent information about a building could be recorded within thirty minutes of arriving at a building site. This allowed more time for a closer examination of the building or time to interview local residents.

A photographic record was kept of all log buildings recorded for the study. Each building was photographed once showing the whole building from the most advantageous angle. Any significant detail items, such as notch type, ax work, or design features were recorded on closeup photographs. The photography was done with a 135 milli-

meter single lens reflex camera using black and white Plus-X or Tri-X Kodak film. Each photograph was numbered and details of the building were recorded on the back of each photograph. Over two hundred photographs were taken, the most illustrative of which may be found in the Appendix.

An attempt was made to gather primary and interview information for this study.[75] The Aural History Department of the British Columbia Provincial Museum provided a series of tape recorded interviews with longtime residents of the Kettle Valley and Chilcotin Plateau. These recordings were valuable to listen to before undertaking fieldwork. As with all interview situations, care must be exercised so as to not offend the sources of primary, local, and first-hand information. The Aural History Department can provide literature and direction on the most productive interview methods.

Correspondence with the Provincial Museum and the Department of Toponomy produced the names of some contact people in each study area who would be willing to be interviewed. Upon visiting the study area to begin field work the contact person was interviewed with the objective of determining three types of information:

1) to gather a list of other knowledgeable people and long-time residents of the study area who could be of help in providing information about the log building history of the study area.

2) To gather specific information about individual buildings within the study area.

3) To have the contact person locate individual sites or areas of abundant log buildings on a 1:50,000 topographic map.

The interviews had determined specific sites and general areas of log buildings within the study area. As each building was found, permission from the owner to include it in the study was received, the Field Site Checklist was filled in as completely as possible, and the owner interviewed to discover any pertinent information. On some days ten or more buildings could be recorded, while on other days only two or three buildings were recorded. The whole process became self-generating, with more information leading to more interview possibilities and those interviews indicating more data or buildings to investigate.

Collate Data and Draw Conclusions

The final step in the study was to synthesize the collected data, photographs, and interviews to produce conclusions illustrative of the log building patterns of the study areas. These conclusions will be covered in Chapter IV- The Findings of the Study and Chapter V- Log Buildings as Geographic Indicators.

Summary

The methods of the study was simple in concept, yet detailed in field execution. The research method has

done three things. One, it has set forth a basic system of quickly and uniformly collecting detailed data within a small research area. Two, the method had assembled information previously uncollected in British Columbia. Three, the method had preserved tenuous material culture data for a society seemingly thirsty for nostalgic connections with their past.

It would be valuable at this point to examine in detail the types and scope of the information collected.

CHAPTER IV

FINDINGS OF THE STUDY

Historical Perspective

The settlers that came into the Kettle Valley and Chilcotin regions of British Columbia did so during a period of industrial development in the eastern urban centres of North America. The British Columbia pioneer operated without the advantage of the technological momentum of the East. By 1870 the Atlantic Cable had been in operation for over a decade. The 1879 Centennial Exhibition gave anxious and amazed technological devotees a view of the 1600 horsepower Corliss steam engine. By 1890 the 400,000,000 bushel American wheat harvest accounted for one-sixth of the world's wheat production. The turn of the century saw mechanized farming make great advances with steam traction engines, harvesters, and a well developed railroad system to carry the staple foodstuffs to market. By contrast the pioneer rancher, miner, or tradesmen on the British Columbia frontier cut crude notches into the ends of logs to erect the buildings of farm and town. There was a definite contrast between the technological development of eastern urban centres and the activities of the western Canadian settler as he hacked away at saddle corner notches or chinked his nearly finish-

ed three meter by five meter log cabin with a mixture of mud and manure.

The fieldwork conducted for this study involved the collection of detailed information from over 160 log buildings distributed throughout the Kettle Valley and Chilcotin study areas. The data can be categorized in three ways,

1) Similarity of design, use, and construction methods within each study area.

2) Similarities between the log buildings of the two study areas combined.

3) Differences between the log buildings of the two study areas.

Similarity of Design, Use, and Construction Within Each Study Area

A. Similarities in the Log Buildings Within the Kettle Valley Study Area

The Kettle Valley study area yielded data on eighty-four log buildings, of which eighty were regarded as reliable and authentic log buildings of the region. While some of the buildings were built as recently as the 1940's, most were constructed during the period 1880-1920. This period coincided with the development of irrigated fruit growing, the development of the local cattle industry, and the extension of the Kettle Valley Railway through the region. The oldest building, circa 1860, was the original Rock Creek assay office, which has more recently

been converted into a duplex residence.

Functionally, log construction methods were used quite extensively for all farm and ranch building construction. This is indicated in Table I.

Table I Kettle Valley Building Types

Type of Building	Number of Examples	Percentage of Total
House	19	24%
Cabin	17	21%
Barn	31	39%
Shed	11	14%
School	2	2%

The use of log construction methods was a widespread and basic form of construction technology in the Kettle Valley, but the quality of log construction varies widely; from hovels that do little more than keep most wind and snow outside to substantial two storied ranch houses that were outposts of comfort on the Frontier. The most lowly outbuilding and the large, dovetail built log house share the basic constructional component of horizontal logs notched together to form strong, well insulated, and long lasting walls. The extensive use of logs for building purposes can be determined by the fact that 67% of the farm building groupings (house, barn, and related outbuildings) were built entirely of logs.

It appears that human shelter is the predominant use of log construction in the Kettle Valley. Cabin and house construction amount to 45% of all log buildings recorded.

This is perhaps not unexpected as the first fifty years of settlement in the Kettle Valley was without rail transport. The movement of sawn lumber to the isolated ranches would have been a laborious and expensive task. Both the poor settler and the more wealthy gentleman orchardist chose to use the easily available log construction materials and technology.

Only a relatively few (14%) of the buildings were small, single or multi-use sheds and outbuildings. The dominance of the large, multi-functional barn was overwhelming and the need for a proliferation of small outbuildings simply did not exist on many of the older ranches. Often, ancillary storage needs were met by using the original ranch cabin or log built barn after they had been replaced by more substantial buildings.

There are few log built schools or commercial buildings in the Kettle Valley study area. Bridesville, Kettle Valley, and Westbridge all have modern school buildings. The two log school houses recorded in the Kettle Valley are old and no longer used as school buildings. While log construction was originally used for even the commercial establishments, these log buildings have more recently been replaced by more modern structures; hence, log built commercial buildings are rare.

Notches

The corner notches used in the log buildings of the

Kettle Valley study area show diversity in total, but reliance on two methods. One, the "V" notch was used extensively for commonplace and utilitarian buildings erected by less skilled builders or craftsmen when available time was at a premiun. Two, the dovetail notch was used by the more experienced and careful builder when quality and longevity were major considerations of construction. A good visual impression of notching methods may be acquired from the Glossary and Plates IV, V, VI. The following table indicates the use of each method of corner notching.

Table 2 Kettle Valley Log Building Corner Notches

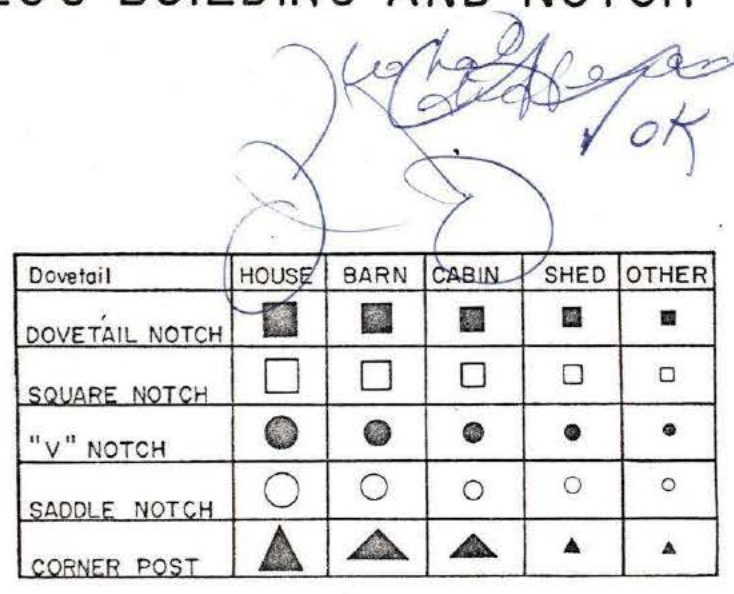
Type of Notch	Number of Buildings	Percentage of Total
"V" Notch	39	49%
Dovetail Notch	15	18%
Square Notch	18	22%
Corner Post	5	6%
Saddle Notch	4	4%
Half Notch	1	1%

Illustration VI displays the relationship between building type (Table 1) and notch type (Table 2) as the two variables were spatially distributed within the Kettle Valley Study Area. The map has been drafted to emphasize the most substantial and indicative building type by the use of the largest symbol size of each symbol type, the next most indicative building type

ILLUSTRATION VI

KETTLE VALLEY

LOG BUILDING AND NOTCH TYPES

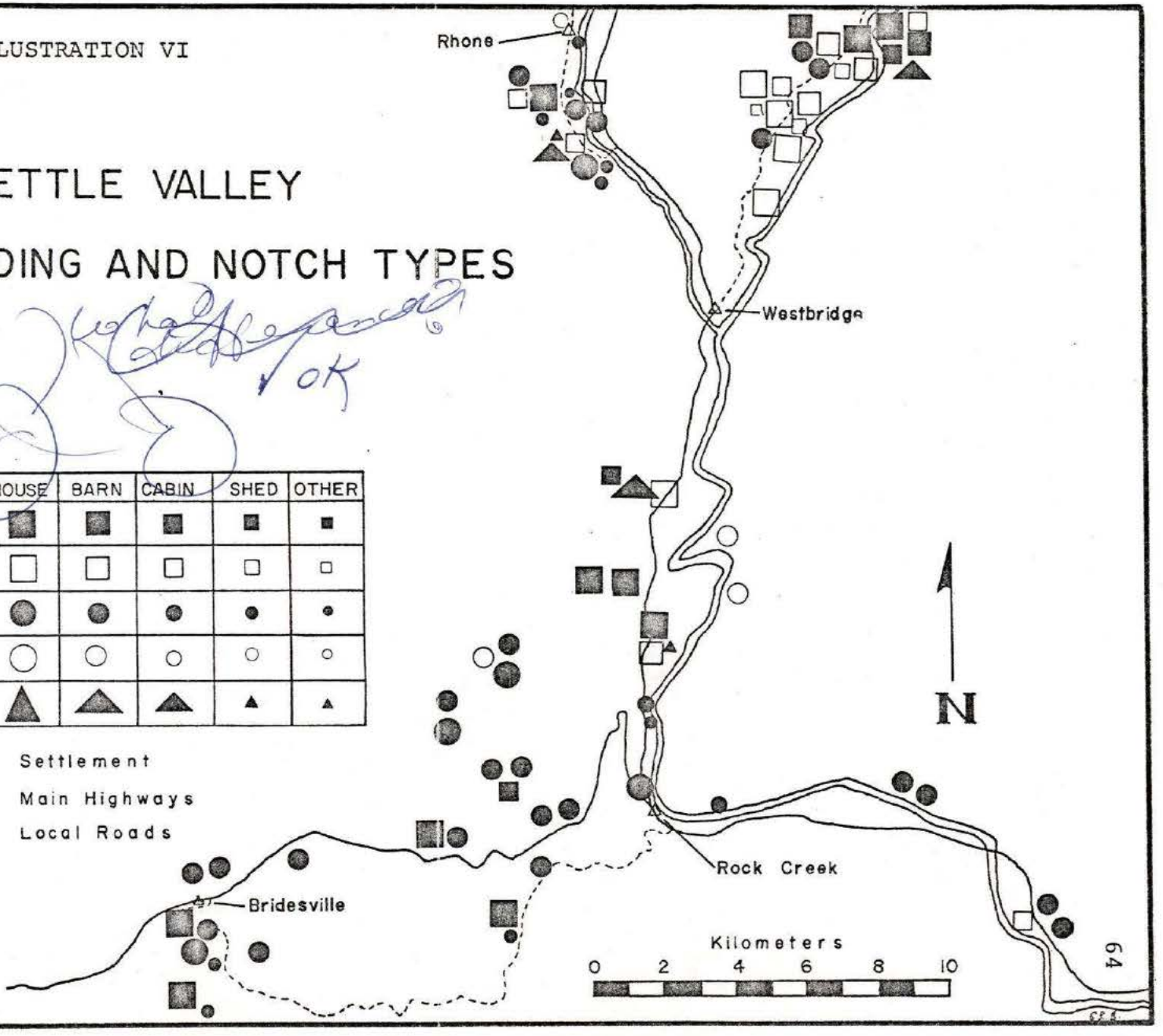


Dovetail	HOUSE	BARN	CABIN	SHED	OTHER
DOVETAIL NOTCH	■	■	■	■	■
SQUARE NOTCH	□	□	□	□	□
"V" NOTCH	●	●	●	●	●
SADDLE NOTCH	○	○	○	○	○
CORNER POST	▲	▲	▲	▲	▲

△ Settlement

——— Main Highways

- - - - - - - - - Local Roads



with the next largest symbol size, and so on. Furthermore, the dovetail and square notches are methodologically related, hence their symbols are similar. Likewise, the "V" and saddle notch are related, with their symbols indicating this. The corner post construction method is unrelated to any other type.

A number of interesting observations may be made from the mapped data. Most of the remaining log buildings appear to be congregated in four nodes; 1) Bridesville, 2) Rock Creek northwest, 3) Rhone south, and 4) Westbridge northeast. It is believed that such patterning reflects the initial settlement distribution within the region. The most desirable agricultural land, closeness to neighbours, and the proximity to the fledgling service centers were locational assets. The second point of interest concerns the spatial distribution of notch types. The Rock Creek northwest and Bridesville nodes appear to have predominantly "V" notched and dovetail notched buildings, while Rhone south seems mixed and Westbridge northeast has a definite concentration of square notched log buildings, plus some dovetail notched buildings. It seems that such a concentration of notching types indicates the existence of a "sphere of influence" of notch types in which practitioners of specific notch types teach new builders so that certain notching

methods are diffused and entrenched within specific areas. The third significant observation is that frequently log building methods are used throughout the ranchstead so that a log built house is paired with a log built barn and sheds, with perhaps the original log cabin present on the ranchstead also.

The "V" notch (see Plate IV) which is dominant in the Kettle Valley study area, has a number of inherent advantages which makes its adoption and use appear to be a conscious and intelligent solution to a major problem of pioneer technology: How does a builder erect walls using round logs weighing several hundred kilograms? The "V" notch solved the problem admirably well. The notch system consists of deep, "V" shaped grooves cut laterally across the ends of the logs. These grooves coincide in angle and size with sloping "V" bevels on the next lower log end. The notch was easy to cut with an axe, requiring only sloping, flat cuts or bevels. By comparison, the saddle notch required rounded, "U" shaped cuts which were more difficult to do with an axe. The mating of the bevels and grooves of the "V" notch gave a strong notching system that resisted the rotation of logs as they aged and the outward sagging or sliding of the walls of the building. The sloping surfaces of the "V" notch drain well, therefore resisting wood saturation and the associated decay. The "V" notch was the utilitarian

notch of the Kettle Valley settler because the notch was quick to make, long lasting, and an effective way to notch logs together into a variety of serviceable buildings.

While the "V" notch was the construction methodology for fast, strong, and serviceable buildings the dovetail notch was the choice of the expert craftsman trying to erect log buildings in the best way possible. The dovetail notch is the most intricate, strong, and long lasting type of corner notch used on any of the log buildings examined by the writer. Dovetail notching was a form of craftsmanship esteemed by most ranchers and axemen because not all woodworkers had the skill or patience to execute a consistently good dovetail corner. While the dovetail notch was widely agreed upon as the best form of log notch, only 18% of all buildings surveyed in the Kettle Valley were built with dovetail corners, perhaps an indication of its difficulty and subsequent usage. Furthermore, its usage was specific; 87% of all dovetail notches were found on buildings intended for human habitation and of all the log houses recorded in the study area 48% were built with dovetail notches. The dovetail method of construction had absolute structural integrity with the sloping, wedge-like notch surfaces locked together. One two-story dovetail built farmhouse was dragged by a tractor

to a new site over thirty-five meters away without any structural damage occuring to the building. The dovetail notch indicated a level of success and aesthetic appeal. The dovetail notch became elevated to an item of folk art.

The square notch (see Plate VI) was the second most popular corner notching method used in the Kettle Valley. It was used on 22% of the buildings surveyed. The notch showed great diversity in the types of buildings on which it was used. Its most common use was the barns (33%) and cabins (28%). Houses accounted for 23% and sheds 11% of the buildings found with square notching. Apparently, this notching type has no clear relationship to function.

The square notch, and its direct relative, the half notch, share as their outstanding attribute a production technique which was easy and accurate. The ends of logs were flattened and squared to form simple lap joints which would allow the logs of adjacent walls to sit squarely on top of one another. It was simple for the builder to bring successive logs closer together by simply shaving the excess wood off the notch surfaces. The square notch was easily cut using an axe or a saw, making two cuts parallel to the wood grain and two cuts coming from the edges of the log to intersect the two previously made cuts. This produced a tongue on the end

of the log. The intricate cutting and fitting required in other notch types did not exist when the builder used the square notch.

A well made square notch had the tight, substantial, and finished appearance of the dovetail notch, but which could be produced by a semi-skilled woodworker. The simplicity, good looks, and savings in time and effort compared to other notch types helped make the square notch popular among Kettle Valley settlers.

The attributes of the square notch was overshadowed by one outstanding shortcoming; it is a structurally weak method for locking massive logs together. The strength of the notch lies in the mass of the logs causing a substantial amount of frictional drag along the notch mating surfaces. Uneven settling or decay of the bottom logs, excessive snow load, or too much weight on second floor joints could cause the walls to bow outwards and simply slide the square joints apart. There are two solutions to this problem. It was often found that long spikes were driven diagonally down through each tongue to intersect the next log. When this was done at both ends of each log it anchored them quite well as long as the wood remained sound. Using spikes added greatly to the cost of the building and necessitated the transport of many kilograms of spikes from the nearest supplier, which in the pioneer landscape

could be a considerable distance. Another method which added strength to the square notch consisted of cutting the tongues with outward flaring surfaces, but then this added to the time, effort, and skill required in the construction of the building.

The saddle notch (see Plate IV) had found extensive use east of the Mississippi River of the United States, especially in the Great Lakes and Deep South, but this notch type has not been adopted in the Kettle Valley where only 4% of the buildings used it, and most of these (75%) were small, utilitarian cabins which had to be quickly and roughly constructed. It was not until later when the rancher had more time and money that a proper house would be built with some other notching method than saddle notches.

The notch is simple and appears to be a method that novice settlers used to hold buildings together. The notch does have the ability to hold logs tightly without the constant measuring and adjusting necessary when building with dovetail or even "V" notches. With the saddle notch the builder can cut a bowl large enough to receive the next log, roll that log into the bowl, and move onto the next notch. The saddle notch lacks the finished, quality appearance of other notch types. Furthermore, a saddle notch cut into the top of a log tends to collect water, thereby hastening the

decay and collapse of the building. The builder can do away with much of the decay potential by cutting the saddles into the bottom of the logs, but apparently this is more difficult and time consuming. The saddle notch was quick and strong, if not long lived, yet for the experienced wood worker there were other notching types that better fitted the pioneer criteria of ease, speed, effectiveness, and appearance.

The corner post method of building horizontal log buildings (see Plate VI) was the simplest and quickest method of construction found in the Kettle Valley. This method consists of setting a vertical log or two vertical planks at each corner of the building, with the horizontal logs stacked one on top of another and factened to the vertical members by spikes or pegs. The vertical posts or planks were seldom set into the ground or attached to a foundation.

Corner post construction was found to occur quite frequently along the Canadian/American border. In the Kettle Valley its use was found in cabin and sheds, with a single example used in barn construction. It would appear that the method was used on small buildings when speed and simplicity of construction were prime objectives. The method lacks strength and longevity so it would be inappropriate for use on large log buildings.

The total strength of the building comes from the ability of the spikes or pegs to securely hold the hoizontal logs to the vertical posts. There is no overlapping or notching of the logs to lock the logs of adjacent walls together.

Roof Types

The researcher interested in the study of vernacular architecture must look towards the building itself, its method of construction, and its surroundings as indicators of the thought and reasoning that went into the fabrication of the building. The roof style and materials of the log buildings of the Kettle Valley follow a definite and unyielding pattern. Ninety percent of the roofs are a simple gable roof (see Glossary and Plate III), while 2% of the buildings have a gambrel roof, 2% have a double pitch roof, 2% have a single pitch roof, and 2% of the buildings have an unknown roof style. The types of materials used to cover the roof also seem relatively invariable, with 68% of the buildings using wooden shake-shingle roofing materials. When reroofing some owners used boards and tar paper on 15% of the roofs, asphalt shingles on 9%, and metal sheeting on 5% of the buildings. The remaining buildings had no roofing material evident.

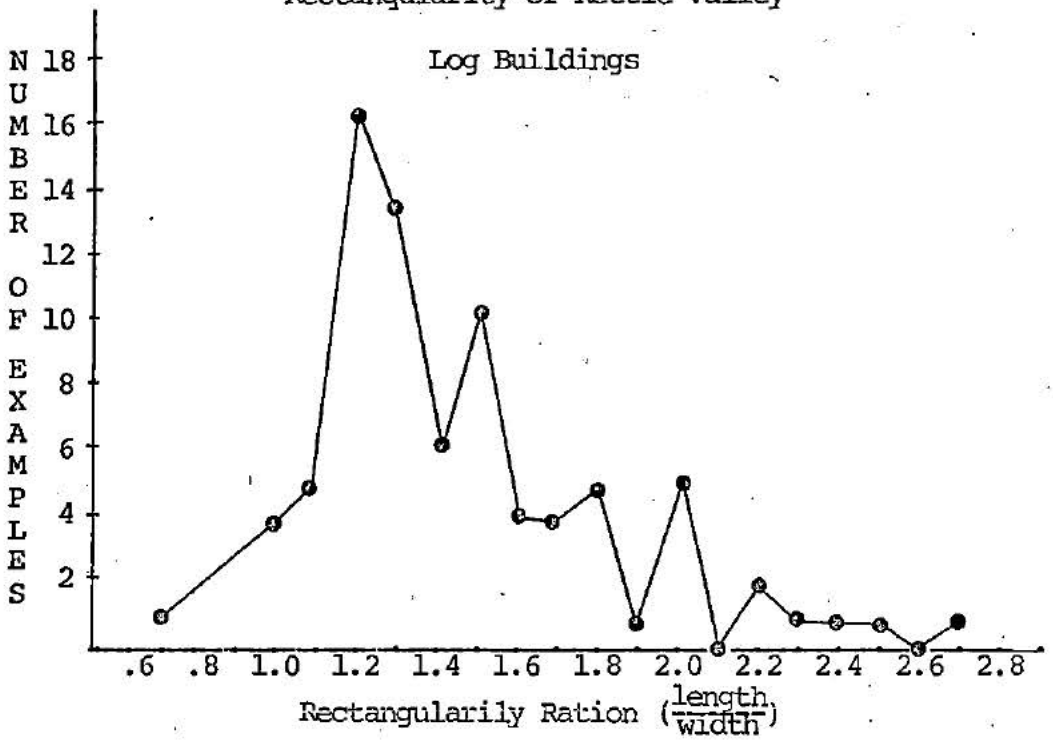
Rectangularity

A basic relationship exists in the proportional length of the side and end walls of the log buildings of the Kettle Valley.[76] The measurements and floorplan sketches made of each log building recorded for this study indicate that the rectangular proportions of the buildings had an empirical relationship. When the length of the building, which is a side parallel to the ridge line of the roof was divided by the width of the building a ratio between 0.7 and 2.7 was derived. Furthermore, when the length/width ratio of each log building is computed and graphed an interesting pattern is produced. Only 5% of the buildings were square, with the remaining 95% being rectangular in shape. Those buildings with a length/width ratio of 1.2-1.3 comprise 36% of the total buildings recorded. The trend decreased to 5% with a ratio of 1.4, but then climbs to 10% for a ratio of 1.5 (this is a ratio that describes a building that is 50% longer than it is wide). The trend falls off rapidly after a ratio of 1.5 except for another sharp peak occurring for buildings twice as wide as it is long (2.0).

Illustration VII

Rectangularity of Kettle Valley

Log Buildings



It seems that the rectangular building was the standard in pioneer log buildings of the Kettle Valley, just as the rectangular building is a general standard for most single family and industrial buildings in North America today. There was little functional reason for the frequency of rectangularity ratios of 1.3, 1.5, and 2.0 that occur in the Kettle Valley log buildings, yet there seems to be an authentic or personal preference for a building that has a length 1.3 times the width. In addition, an almost geometric preference for a building one and one half to two times longer than it is wide adds more pattern without explanation.

Conclusion

The folk precepts that contributed to the construction methodology of log buildings in the Kettle Valley varied extensively, yet there appears a pattern that indicates general agreement as to the best methods, materials, and measurements that contribute to a building that displays a "rightness" for the builder. Log buildings were constructed with a sense of proportion and with standards of tolerance within which they were built. The result was a certain uniformity in building size that indicated a good and proper job. While logs were a somewhat crude building material and the workmanship at times even cruder, the builder could easily enough construct his building to meet his own and the regionally accepted standards. Whether this relationship was stated in verbal or written discussions of log buildings construction must at this time go unanswered in this study. The observation that a relationship does exist and that this relationship was consciously or unconsciously known by many log builders in the Kettle Valley is indicated by the data.

B. Similarities in the Log Buildings Within the Chilcotin Study Area

The Chilcotin study area is a productive log building research area because it yielded eighty-four log buildings, of which eighty-three were included in the study. The Chilcotin log buildings show an age distribution that

extended over nearly eighty years of settlement history. As best as can be determined from limited chronological data the ages of the buildings fall loosely into three classes,

1) The earliest buildings were constructed during the initial development of cattle ranching in the region.

2) A more recent group of buildings appear to have been built in the period 1900-1910 with the development of better transportation and settlement demand that infilled much of the ranch land.

3) The most recent log buildings were built during the 1940's as a result of war-caused shortages of manufactured building materials.

A typological breakdown of the recorded buildings yields the following results:

Table III Chilcotin Building Types

Type of Building	Number of Examples	Percentage of Total
House	16	19%
Cabin	25	30%
Barn	22	27%
Shed	13	16%
School	3	4%
Store	2	2%
Lodge	1	1%
Hospital	1	1%

The preponderance of log buildings (49%) that were intended for human occupation indicates the basic and immediate need that log buildings filled in providing shelter from the harsh winters of the interior Chilcotin Plateau. The

relative dominance of the cabin indicated that initially the pioneer building with logs had a need for small scale housing and it would appear that log construction was used extensively for the immediate needs of the ranch; human living and livestock protection.

Notches

The log buildings of the Chilcotin study area were constructed with a variety of notches, yet it appears that specific notches were used effectively for certain types of buildings.

Table IV Chilcotin Log Buildings Corner Notches

Type of Notch	Number of Examples	Percentage of Total
"V" notch	23	28%
Dovetail notch	24	28%
Saddle notch	19	23%
Square notch	14	17%
Corner post	3	4%

An examination of Table IV indicates a nearly equal usage of the four most commonly used notch types; "V", dovetail, saddle, and square notches. Yet a comparison of notch types with the buildings they were used on produces a more detailed and explanatory relationship (see Table 5 for a complete itemization).

ILLUSTRATION VIII

CHILCOTIN

LOG BUILDING AND NOTCH TYPES

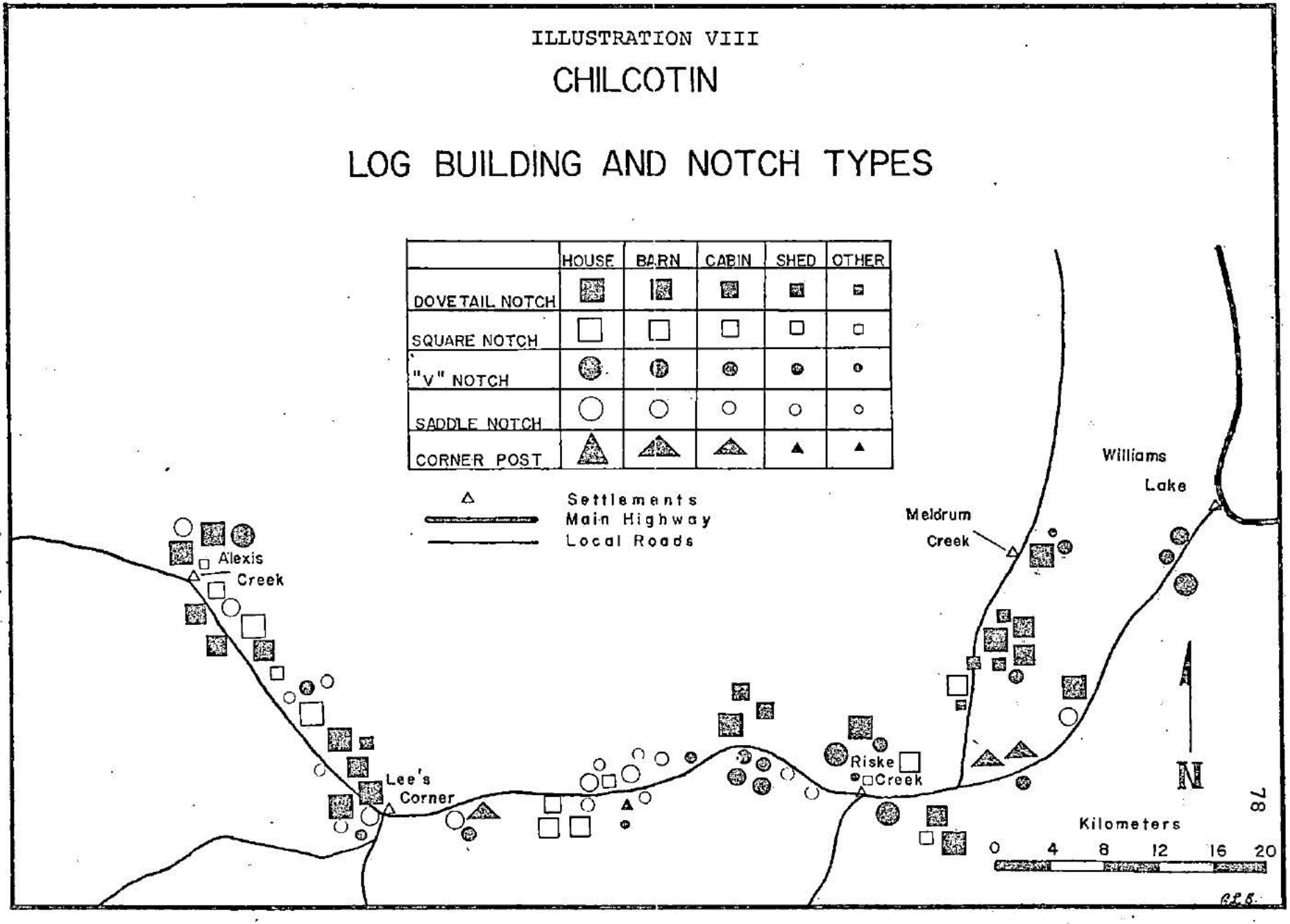


Illustration 8 indicates the relationship between building type and notch type. The emphasis, symbolization, and categories of notch and building types are identical to Illustration 6. The illustration above indicates several interesting points about the Chilcotin study area. While the Kettle Valley study area has a four node distribution of log buildings, the Chilcotin appears to have a much more even locational distribution of log buildings. This could perhaps be a function of the more hospitable and homogeneous terrain of the Chilcotin when compared to the Kettle Valley. Concentrations of similar notch types in the Chilcotin occur in very small groups, such as the group of dovetail notched buildings south of Meldrum Creek, the saddle notched buildings between Riske Creek and Lee's Corner, or the dovetail notched buildings northwest of Lee's Corner. Furthermore, it would appear that local road transportation has proven very important in the siting of homesteads because the location of log buildings is consistently in close proximity to the roads. The distribution of notch types appears much more varied and mixed than in the Kettle Valley. As notch types are a major diagnostic feature of log buildings, it may be assumed that there is a cause for the mixed patterning. One possible cause would be the local immigration of a settler population that had already acquired log building skills from previous homelands. This

would result in settlers practicing a variety of log notching methods in close proximity to one another.

The "V" notch was used predominately on cabins, as 38% of all the Chilcotin study area cabins had been built with the "V" notch. The "V" notch was only rivaled in use in cabin construction by the saddle notch. The "V" notch was also used occasionally in house and barn construction, with 17% of "V" notched buildings being houses and 13% being barns.

Dovetail notches were very important in the Chilcotin for the erection of houses. Sixty-three percent of all houses surveyed were built with dovetail notches. The superiority of strength and longevity of this notch compared to other notch types available is further indicated in that it was seldom used in a frivolous manner to produce the lowly cabin as dovetail notches were used in only 8% of the cabins recorded in the study area. The importance of the barn to the ranching homestead and ranch economy is illustrated by the fact that 32% of all barns were built with dovetail notches. The dovetail notch indicates the importance and intended longevity of the building.

The saddle notch, well known for its simplicity, was another popular Chilcotin notch for erecting the smaller scale and less affluent ranch buildings. The saddle notch was unused in house construction, although

it accounted for 31% of all the cabins built. Generally, the utilitarian nature of the saddle notch relegated it to a position of use in the less important buildings constructed in minimum time by the less skilled craftsmen.

The square notch is one of occassional use for a variety of building types. While its most common usage was in barn construction (23%), the square notch occurred with limited frequency in houses (12%, cabin (14%), and sheds (15%). The notch type was also common in the more public buildings recorded in the study area, such as a hospital and a store, but the sample size was small so definite conclusions cannot be made. Craftsmanship appears to be a major factor influencing the use of the square notch. Its simplicity and finished appearance overshadowed its lack of structural strength. For the less skillful builder simplicity was probably an important factor contributing to the acceptance and use of the square notch.

The corner post method of log building construction has found little use in the Chilcotin, accounting for only 4% of the buildings surveyed. Four buildings were built with corner posts; three were cabins and one was a shed. While this sample is small, it would appear that the lack of skill needed to build with corner posts, coupled with the method's lack of strength for large buildings, was well known to the pioneer. Hence, the method was used on

the most common and short lived log buildings.

Roof Types

The roof styles of the log buildings surveyed in the Chilcotin share an expected, yet overwhelming, pattern. Eighty-nine percent of the buildings had a gable roof, 5% had gambrel roofs, 1% had a single pitch roof, and 5% had an unknown roof style. While there was great variety in building form, function, and craftsmanship, the almost invariable use of the gable roof style runs like a thread through the building history of the Chilcotin. While a simple gable roof is easy to construct, it is not the only simple type of roof form. Nevertheless, it pervades all aspects of vernacular and contemporary architecture to become one of the single, ubiquitous aspects of North American architecture.

The roof materials found in the eighty-three log buildings of the Chilcotin study area showed considerably more variation than the style of the roofs themselves. While the gable style was a virtual certainty, the variables of time, money, or preference may leave the gable roof constructed of dirt or shingles, or the roof may be remodeled, still with the gable shape, but covered with asphalt shingles or metal sheets.

The most common roofing material was earth (see Plate II). It was used on 35% of the log buildings, either

with the earth exposed to the weather and growing a healthy crop of stabilizing weeds, or the earth roof may be found as a thirty centimeter or more layer of insulating earth covered by a conventional roof of shingles or boards that protected the roof from erosion. Wooden shake roofs were also popular, being used on 24% of the buildings. Together, these two traditional roofing materials were used on nearly 60% of the log buildings surveyed in the Chilcotin study area. Board roof coverings were found on 20% of the buildings, while metal covered 7%, and asphalt shingles included another 10% of the buildings. It would appear that the renovation of a log building roof indicates a continued usefulness of the log building.

Rectangularity

The log buildings of the Chilcotin maintain the rectangular symmetry characteristic of much of the folk and personal architecture of North America. As defined previously, the rectangularity of a building is derived from a simple division of the length dimension by the width dimension. Such a calculation usually produced a ratio greater than 1.0, but less than 2.0.

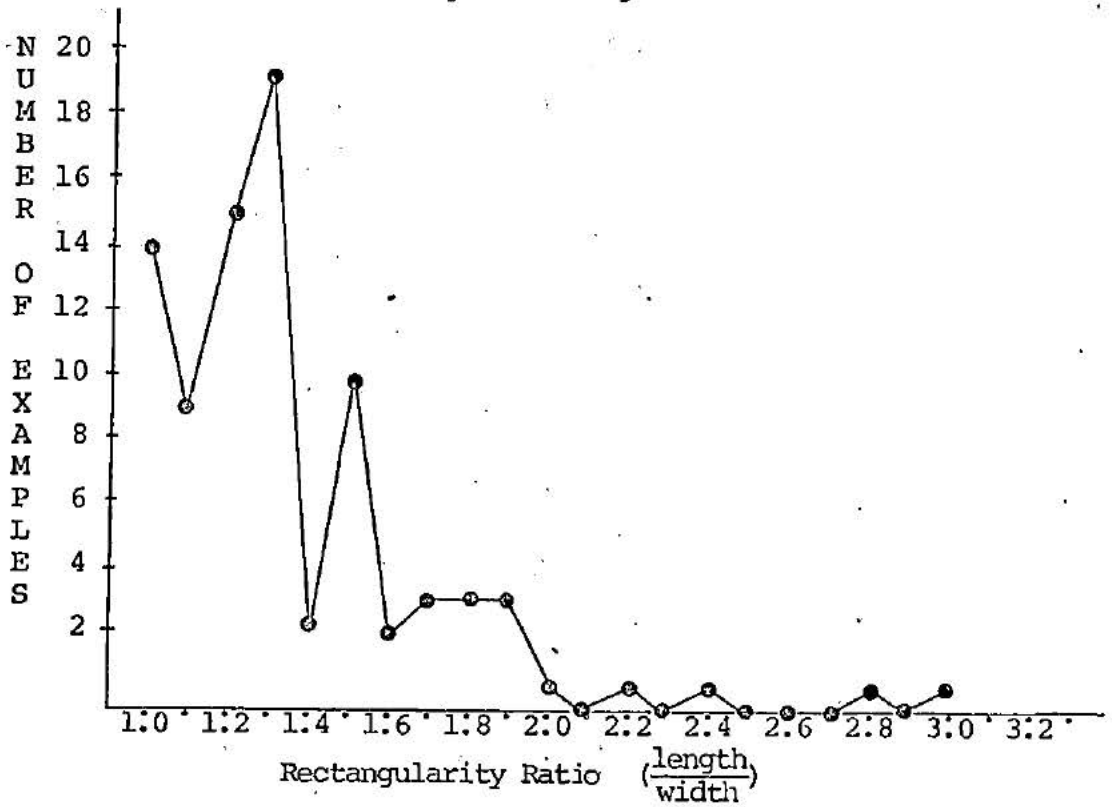
For the buildings of the Chilcotin some rather interesting patterns emerge. A large proportion of the buildings (16%) were square, several of these were double

pen barns with each pen square, yet the overall building shape being rectangular. An examination of Illustration IX "Rectangularity of Chilcotin Log Buildings" will indicate two other distinctive peaks with valleys on either side. The most significant peak occurs at a ratio of 1.2-1.3 with fully 30% of the buildings having this rectangular shape. The curve falls off rapidly to the ratio of 1.4, but climbs quickly to 1.5, again falling quickly back to a level of three or less examples of each ratio class until all the study area buildings are accounted for.

Illustration IX

Rectangularity of Chilcotin

Log Buildings



Conclusion

The log buildings examined in the Chilcotin study area show that the cabin and the general purpose barn are the most frequent types of structures built with logs. Notching styles appear to be widely distributed among the various methods (dovetail, saddle, "V", and square notches) with their use dependent on the skill of the builder and the intended use of the building. The overwhelming use of the gable roof design indicates how ingrained selected architectural traditions are in North American vernacular architecture, while the dominance of the dirt roof indicates a preference for local initiative and innovation. Further, the consistent preference for the rectangular building indicates strong traditions within vernacular and folk building constructions.

Similarities Between the Log Buildings of the Kettle Valley and the Chilcotin Study Area

While the two study areas are separated by over 400 kilometers and differ in physical environment and settlement history, there are some similarities among the log buildings of the two regions. As this and further studies collect data dealing with the log buildings of British Columbia, patterns of widespread similarities could yield greater understanding of certain general concepts of log building construction.

The log buildings of both regions were the product of an abundant environment coupled with a lack of manufactured goods. Necessity and harsh interior winters demanded the construction of suitable shelter if the pioneer's perceptions of the regions were to produce fruitful homesteads. From interviews and an itemization of the source regions of pioneers settling in the Kettle Valley and Chilcotin it seems that settlers had either previous log building experience, knew of log buildings from previous places they had settled, or at least had enough common sense and carpentry skills to erect crude, yet serviceable, log buildings.

Notches

The Kettle Valley and Chilcotin have the same diversity of notch types; dovetail, "V", saddle, square, and corner post construction were used on log buildings in both study areas. This would indicate a similar background of basic constructional information because there are several other log building methods that could have been used. They are, vertical log construction, double notching, half notch, plank construction, diamond notch, tongue and groove notches, simple butt joints, and stovewood construction (see Glossary). These notching methods are found unequally distributed throughout the eastern United States.

Table V Notch Type Usage

Expressed as a Function of Building Type

(Kettle Valley/Chilcotin)

	Dovetail	"V" notch	Saddle	Square	Corner Post
House	48%/63%	26%/25%	0%/0%	21%/12%	0%/0%
Cabin	23%/7%	18%/38%	18%/31%	29%/14%	12%/10%
Barn	6%/32%	70%/13%	3%/32%	18%/23%	3%/0%
Shed	0%/31%	64%/15%	0%/31%	18%/15%	18%/8%
School	0%/33%	50%/66%	0%/0%	50%/0%	0%/0%
Store	0%/50%	0%/0%	0%/0%	0%/50%	0%/0%
Lodge	0%/0%	0%/100%	0%/0%	0%/0%	0%/0%
Hospital	0%/0%	0%/0%	0%/0%	0%/100%	0%/0%

The dovetail notch appears to have preeminence in house construction because of the longevity, strength, and quality of the notch. The strength of the "V" notch and the finished appearance of the square notch were also sought after criteria that also caused these two notch types to be used in house construction. By comparison the cabin, which was usually utilitarian in its conception and short lived in its expectations, were built with a variety of notch types in both study areas. The variation in the cabin notching may indicate something of the variety of skills and lack of a regional prefencence which existed for the settler upon arriving in the Kettle Valley of Chilcotin.

Barn construction appears to indicate that the local or regionally preferred "stock" or common notch type was

used for the barn. The Kettle Valley used the dovetail/"V" notch most frequently, while the Chilcotin used a combination of dovetail/"V"/saddle notches.

The other building types (sheds, schools, stores, lodges, hospitals) do not have large enough sample sizes to highlight any reliable trends.

Roofs

The relationship of the roof types used in both study areas shows strong similarities. In both areas the simple gable roof is virtually the only type considered for nearly all buildings, 90% in the Kettle Valley and 89% in the Chilcotin. Gambrel roofs were only occasionally found in both study areas. Furthermore, roofing materials are fairly evenly divided among traditional materials. The Kettle Valley used wood shakes in 68% of the recorded log buildings while the Chilcotin used traditional roofing materials to a similar extent, with shakes used on 24% of the buildings and earth on 35%. In both study areas the continued use of log buildings as an intregal part of the building landscape has demanded that roofs be replaced by more modern materials, such as metal and asphalt.

Rectangularity

There is comparability in the relative dimensional proportions of the log buildings built in both regions.

Both regions have a vernacular preference for buildings that are one/fifth to one/third longer than they are wide (rectangularity ration 1.2-1.3). The Kettle Valley had 36% of its log buildings of all types with this proportion while the Chilcotin included 40% of its log buildings in this group. Both study areas showed a dramatic depression of the curve following the 1.2-1.3 peaks (Illustration VII and Illustration IV), with the Kettle Valley decreasing to only 8% of the buildings having a 1.4 ratio while Chilcotin building proportions similarily decreased to only 2% of the buildings at the 1.4 ratio. The curve of building rectangularity for both study areas takes a rather dramatic rise at the geometric length/width ratio of 1.5. In the Kettle Valley this curve rises to 13% of the buildings and then falls to a constant level of 5% or less for each subsequent ratio class. Likewise, but even more dramatically, the Chilcotin ratio curve rises from 2% of the buildings at a ratio of 1.4 to 12% of the buildings at 1.5 then falls quickly to a level of 4% or lower for all subsequent ratios.

The general regularity of peaks and valleys of the rectangularity ratio curve for the Kettle Valley and Chilcotin study areas would indicate that inherent geometrics and vernacular proportion would allow comparison of log buildings in British Columbia. It is indeed interesting that both study areas showed remarkable congruencies

in the manner in which large numbers of buildings coincided in their proportional measurments, although the absolute building dimensions varied greatly. The size of a building has a relationship to its usefulness, yet the proportional relationship of length and width appears to have no functional purpose.

Conclusion

The log buildings surveyed in the Kettle Valley and Chilcotin study areas have several points of comparison. Log use and building type, notching types, roof styles and materials, and rectangularity all indicate generic similarities that in total are more than chance occurrences. The relationships point to a population of pioneers that arrived in two distinct areas of British Columbia and practiced their skills with a similar repertoire of knowledge and perceptions. This produced an array of log housing that was very similar in design and execution, if not in the subtleties of construction.

Differences in the Log Buildings of the Kettle Valley and Chilcotin Study Areas

While the two study areas indicate a more than cursory positive relationship in log building morphology, there also appears to be several points of dissimilarity that will be explained in the following pages.

Building Types and Corner Notches

The Kettle Valley has a greater percentage of log barns than the Chilcotin area does. Thirty-nine percent of the Kettle Valley log buildings are barns, compared to 27% of the buildings in the Chilcotin study area. An examination of the landscape of both study areas reveals that possibly the more gentle relief and more accessible grazing land of the Chilcotin decreases, but does not obliterate, the need for large livestock and feed storage barns. Hence, this is reflected in the number of barns found in the Kettle Valley where grazing land is at a premium compared to the more open Chilcotin landscape.

The most important manner in which the corner notching style varies is in the regional establishment of a stock or basic notch type. The Kettle Valley possesses this stock type with 49% of all surveyed log buildings using the "V" notch. In the Chilcotin, while the "V" notch (28%) and the dovetail notch (28%) are the most common type, they are rivaled by the use of the saddle notch, which is used in 23% of the buildings. This contrasts quite noticeably with the low, 4% usage of the saddle notch in the Kettle Valley. Generally, the saddle notch is considered less satisfactory then the "V" notch. Furthermore, the saddle notch seems to be used most frequently by the less skilled builder or the pioneer in a

hurry because the buildings that the saddle notch is found on are usually poorly constructed. The difference in use of the saddle and "V" notch in the two study areas indicates that information and skills are held regionally rather than universally. Hence, if the pioneer had settled in the Kettle Valley and had solicited assistance from his neighbours, the resulting log building would more likely possess "V" notches. Furthermore, the different development of a basic notch type in the Chilcotin and Kettle Valley could indicate differences in the predominant source regions of pioneers into the two settlement areas. Kniffen and Glassie have produced a composite map locating the relative importance of various corner notching methods as they occur in the eastern United States. It may be assumed that regional patterns of log notching styles occur throughout North America where log building construction exists. A regional patterning of notch types exists in British Columbia. While the boundaries of these patterns within the province are unknown at this time, it would appear that the data collected in this study begins to make these patterns meaningful.

The Chilcotin settler has shown a greater preference for the dovetail notch than have the log builders of the Kettle Valley. While 28% of the Chilcotin log buildings use dovetail notches, a relatively smaller proportion of

the Kettle Valley buildings (18%) were held together with the superior dovetail notch. A casual conclusion might indicate that the Chilcotin builders were more skillful and more concerned with quality than their Kettle Valley counterparts. Yet the general quality of Chilcotin log buildings were found to be lower than the buildings of the Kettle Valley. The cause of this probably lies again in the differences of information and knowledge that flows within the pioneer environment. A simple enumeration of notching styles gives equal value to each log building recorded. Such an enumeration gives no indication of the quality involved in the construction of each building, with quality being a subjective aspect which is difficult to measure. The relatively high numbers of dovetail built, but poorer quality, log buildings found in the Chilcotin indicate that the information circulating in the Chilcotin gave emphasis to building with dovetail corners, yet the skills of the pioneers were not equal to the task of constructing log buildings with the normal care and craftsmanship associated with dovetail notched log buildings.

Innovation and Roof Types

A comparison of the log buildings of the Kettle Valley and Chilcotin study areas will reveal a Chilcotin innovation which indicates the practicality to which the settler may extend himself in order to make his life more

comfortable or his agricultural practices more economical. The widespread use of the dirt roof in the Chilcotin is an example of regional innovation on the pioneer landsape.

The dirt roof greatly increases the thermal efficiency of a building by providing thirty centimeters or more of insulating earth to complement the insulative values of the thick wooden walls of the building. A house will lose a large percentage of its heat through the roof because density differences of warm interior air places the warmest and least dense air directly against the ceiling or roof. The warmer the interior air the greater is the temperature gradient between the interior and exterior air. The roof of a building will tend to loose the most calories of heat, which must be replaced to keep the buildings at a comfortable temperature. The construction of dirt roofed log buildings involved the construction of an overstrong roof structure and the replacement of wood shakes with earth.

Thirty-five percent of the log buildings recorded in the Chilcotin study area had dirt roofs. This compares quite clearly with the complete absence of log buildings with dirt roofs in the Kettle Valley. The reasons for dirt roofs being found in one study area and not the other is possibly linked to differences in the information available in each study area. Much of the log building done in each study area was done by people who had no

cultural or ethnic background of building with logs (see Footnote 77), therefore, in practicing their log building skills they would possibly be more open and receptive to new ideas. Somehow, and at sometime, the idea of the dirt roof was introduced into the Chilcotin, or else the idea was generated from within. From the widespread use of this innovation the dirt roof appears to be well accepted in the Chilcotin, yet within the climatically slightly milder Kettle Valley the innovation does not occur at all. Perhaps the Kettle Valley settler decided that the winters were not harsh enough for the extra construction necessary to support a heavy dirt roof. More likely, the idea of the dirt roof was simply never introduced and popularized among the settlers in the Kettle Valley. Whatever the reason, the two study areas do indicate this instance of obvious difference in the method of construction and evolution of the log building in British Columbia.

Chapter Conclusion

Within the limits of the range of design and construction possibilities, the log buildings of the Kettle Valley and Chilcotin were built with common aspects of design and typology. Overall, the log buildings of the two study areas were constructed with a few common notch types, had roof styles and materials which were similar

and were built with strikingly similar rectangular proportions. The easily built log building could have taken on large variation and personal innovation from the pioneers, but it is evident that just the opposite is true; the log buildings had a general sameness about them.

The following chapter will examine the log building as an indicator of several geographical factors. The log building is more than a collection of notch types and roofing materials. It represents the effort of the pioneer to settle a new landscape and impart his personal and cultural ideals onto the farm lands.

CHAPTER V

LOG BUILDINGS AS GEOGRAPHIC INDICATORS

Just as the anthropologist sifts through the shales and silts of the Omo River sediments of Ethiopia searching for evidence of the rise of humanoids, so too the historical and cultural geographer filters the obvious and hidden shards of evidence which are distributed across the surface of the earth. This study has selected one element of the North American landscape--the log building---as an indication of past and present cultural patterns in two study areas of British Columbia. The log house and associated agricultural outbuildings allowed the homesteading genesis of settlement in British Columbia to occur. The study of log buildings stands as more than the collection and ordering of a house type or typological assessment of temporary architectural fashion. Instead, the study of log buildings provides the researcher with a view of pioneer decision making as it would eventually contribute to settlement infilling in much of western Canada.

The log building is one type of data from which cultural geographers piece together an understanding of the stages of evolutionary changes that have occurred during development of the North American landscape. The

regional evolution of log buildings has been effected by different historical, environmental and cultural influences. Yet, despite these pressures, the log building remains as one of the most long lived and persistent element of the rural environment.

Log buildings show us, in part, the following aspects of pioneer settlement in North America:

1) Form, function, and style are very interrelated.

2) The natural environment encourages the use of the log building.

3) The pioneer works and acquires the skills necessary to produce log housing.

4) Culture and ethnicity, while seemingly influential, may actually be of minor importance in modifying or effecting the log building pattern that emerges on the rural landscape.

5,6) Both the availability of time and pioneer personality must ultimately affect the type and quality of log buildings that emerge on a homestead.

7) The British Columbia pioneer was practicing a form of technological regression during times of sweeping technological change in the early 20th century.

These seven geographical indicators will be examined in this chapter.

Form, Function, and Style

It would be difficult to categorically deny the use of folk, urban, or rural buildings as indicators of cultural patterns. Henry Glassie has been particularly astute in separating form, function, and style from

one another. Form and style may initially seem synonymous, but they may best be differentiated by stating that the form is non-popular. Form is long lived and the result of cultural traditionalism, while by contrast style is the result of popular culture, with a relatively short lifetime. Function is best defined as the size, shape, and complexity of a building as dictated by the use to which the building is put. The observer may use the variables of form, function, and style to examine log buildings. Such an examination of these variables must deal with the obvious, the trivial, and the inconspicuous if one is to derive as much as possible from the investigation. Some buildings will yield little of significance when considered individually, but may contribute to the aggregate data from which patterns may be first observed and appreciated. By studying the photographic record and Field Site Checklist a number of observations may be made regarding the form, function, and style of the log buildings of the Kettle Valley and Chilcotin study areas. These observations will be explained in the following two sections.

Form, Function, and Style in the Log Buildings of the Kettle Valley

Seventy percent of the cabins (see Plate II) had the entrance located at the gable end of the building with the roof extended two or three meters from the end of the

building. This achieved two functions; first, it provided sufficient headroom at the doorway, which would not necessarily be the case if the doorway was located under the eaves of the building. Secondly, the extended roofline provided a snow-free and dry place to do repair work on farm equipment, as a convenient storage area for farm and household goods or, the shady overhang provided refuge from the intense summer sun. In essence, the overhang provided an increase to the living and working space of the cabin without much additional labour, time, or expense. The simple extension of the top wall plates, roof purlins, and roof ridgepole, plus the roofing of this extended framework completed the functional refinement of the basic log cabin. It would also be difficult to deny the more pleasing and inviting nature of this roofed cabin entrance compared to an unadorned entrance. Form and function have melded to produce a cabin that was still easy to construct, but fulfilled more tasks. The usefulness of this roofed entrance is substantiated by the great frequency of its use.

Many barns had little chinking in the upper tiers of logs, or in fact, had completely open-ended gables. Not only did the open gables contribute to the easy addition or extraction of animal feed from the hay loft, but along with the unchinked logs, enhanced the drying of slightly damp, newly stored feed. This reduced the chance of

spontaneous combustion and the resulting fires that could be so disasterous to the isolated pioneer. Function directed the thoughtful log barn builder to the use of the open ended or non-chinked gable (see Plate III).

An unfinished, but expertly built log house located while hiking the hills above the Kettle River aptly shows the relationship between form, function, and style (see Plate I,V). This small house (five by eight meters) is no different in its basic components from many of the log houses distributed throughout the Kettle Valley. Yet the attention to detail indicates a knowledge, skill, and appreciation of craftsmenship which extends itself far beyond the basic construction of suitable shelter. The centrally located door, equally spaced flanking, windows, and centrally located gable-end windows show the clean symmetry of the lines and door/window openings. Most impressive is the axe work that left the inside and outside faces of the logs hewn flat, parallel, and as smooth as if they had been run through a gang saw. The equally spaced, machine-like axe marks left in these log faces belies the manufactured appearance of the work. The full dovetail notches were cut with precision and uniformity. Such craftsmenship goes beyond the bounds of the form and function and enters the realm of style which the beauty and superiority of construction conveys. There is no practical value in the symmetry of the

building or in the supreme quality of the axe work, stroke after stroke, cut after cut, until the waste wood is gone and the finished notch or hewn log is ready to be added to the building. It became clear that the particularly talented person who constructed this building could dwell on the non-utilitarian aspects of log construction; to him, style and craftsmanship were very important.

At the turn of the century Mr. Hume from England settled in the Kettle Valley. Being a person of some wealth he did not worry about simple economic survival in this new land. Instead, his creative energies were focused on one of his ambitions; to build a house shaped like a boat. Not being well acquainted with the skills of buildings with logs, he used a very rough and extreme square notch, and with it he built the only tall sided, pointed prow house in the Kettle Valley. Form and style in this case were paramount, yet the impetus was not a form or stylistic influence evolved over generations of cultural influence, but rather the house was the product of the individualistic Mr. Hume.

Many of the barns of the study area had single pitched roof additions added to the sides of the main barns so as to extend the eaves at a more gentle pitch (see Plate III). These are very similar to the Appalachian barn types reported by J. F. Hart. The addition of these lean-to

structures evolved solely from the functional need to add more space of simple construction to the barn. The form, therefore, evolved from the functional need to increase equipment and animal storage space as the farm or ranch grew.

While the log buildings may appear crude to some, symmetry, form, and style were of importance to many who built with logs. This study located one large, log house which displayed a very complete symmetrical arrangement of the building's components. The porch and house roof lines are parallel to one another with the door centered in the middle of porch. The first and second story windows are placed vertically above one another with the windows divided into four panes, each pane being twice as tall as it is wide. The centrally located chimney and the forty-five degree roof pitch complement each other. Side windows on each story are located vertically above one another. Such symmetry was non-functional, yet stylistically, the impressions the builder held contributed greatly to the style of the house. So strong were these impressions of style and symmetry that the log house recorded in this study was actually the second house to occupy this site. The original house burned down in the early 1930's and was identical to the house recorded and described above.

It is seldom that a log house has a compound or "L"

shaped roof. Logs are heavy and awkward to build with. Much of the awkwardness comes from the need to cut corner notches to hold the building together. Log house builders have normally chosen to build simple rectangular buildings. By comparison, the users of wood frame construction had more design flexibility because of the qualities of their building materials. One of the few log buildings recorded with a complicated shape began as a simple one and one-half story rectangular log house and only when more interior room was needed was a log addition added and the "L" shape produced. Again, function and style were drawn together to produce the form of this log building. There was a household need for more space and the builder was sufficiently skilled to actualize his preference for the more complicated log house shape compared with the normal rectangular utilitarian frontier construction.

While most log house builder's spent extra time and effort in the design and execution of the substantial log ranch house, most log cabin builders were forced economically or environmentally to complete the building quickly, so it was frequently done in a makeshift manner. The occasional log cabin was built with superior care and craftsmanship comparable to the normally better built log house. One cabin recorded was small, but the log notching was very well done, with tight, solid joints that would insure the integrity of the building for decades. An

interior partition was mortised and tenoned into the side log walls in a manner reserved for large, well designed and well built log houses. It seems evident that certain log buildings provide a visual record indicating that the personal qualities of the builder are such that the normal causative relationship between form and function are secondary importance to pure quality.

In certain instances the construction of a significant log building was not an individual effort, but rather was the result of community response. Such was the case with the Barton house. This large, two storey log house was built in the early 1900's for the new bride and hoped for family of Mr. Barton. The Rock Creek community wanted a school, but there were not sufficient children to justify a school, a teacher, and a teacherage. When Mr. Barton was encouraged to marry and increase the local school-age population, he replied that marriage could only occur if he had a suitable house for his new wife. As a result the community members built the dovetail notched, two storey log house. With such a communal effort the various skills and ideas of the individuals of the community were melded and synthesized to produce the Barton house. The round ended shingles covering the gable ends, the extensive veranda, and the dormer windows were stylistic rarities in the Kettle Valley, but could be added to this building because of the community involvement and excess

labor supply. The Bartons went on to help fill the Rock Creek School.

There were two really fine, although small, log buildings discovered in the Kettle Valley study area. One of these has already been described on a previous page. The other is an abandoned house that still shows the care and craftsmanship that can go into making the normally crude log building something of beauty. This small house had linen backed wallpaper applied to all the interior walls. The porch had five inch by five inch posts which have been turned to produce a tapered column, with the square dimensions of the lumber forming the base and top of these supporting posts. The central brick chimney was painted a bright yellow, while the logs of the house itself were painted red with contrasting white painted chinking. The notched corners of the building were hidden behind fascia boards to make the building even more finished and refined. This building goes far beyond the primative basics of the log building as a pioneer habitation. This house was built with pride and care, probably to show the taste and affluence of the builder/owner. Splashes of refinement, such as bright paintwork or wallpapered interiors must have provided a snug refuge from the basic lifestyle existing in much of western Canada. While a larger house may have been out of the question, the residents were still very con-

cerned with living a comfortable life. They built as much comfort and style into their house as they could.

The double pen barn is a folk feature of the Appalachian hillside farm. The double pen barn occurred in the Kettle Valley in the singular example at Stanley Bubar's ranch. This barn type is actually two smaller barns built side by side with a common roof covering both barns and the alley in between. The alley for the Appalachian archetype, as well as the Kettle Valley example, is the epitome of form and function. The alley provides a covered area for storage or repairing equipment and allowing ample natural light to make the repair work easier. The alley was also used to load or unload hay from the hay loft. There appears to be no stylistic impetus involved in the construction of the Bubar barn. The idea was a sound one as it made the barn more serviceable. The source of the idea that encouraged the builder to use the double pen arrangement is unknown. It could have been an imported concept or an original local idea. Interestingly, the idea did not seem good enough to encourage any neighbours to follow suit and construct their own double pen barn.

Form, Function, and Style in the Log Buildings of the Chilcotin

The Chilcotin and Kettle Valley are separated by distance, history, and environment, yet the trilogy of form,

function, and style operate equally well in both areas. For the more substantial agriculturalist, building symmetry appears to have a definite position in the visual evolution of the buildings on the ranchstead. The Moon Ranch is a case in point. Both the house and barn have a true balanced appearance, especially enhanced by the placement of window and door opening. The house is a one and one-half story structure. The centrally placed gable roofed dormer is further centralized by the chimney above and the front entrance below. The front entrance addition is flanked by a four panel window on each side. The gable end of the house has a centrally located double panel window on the second story with balanced single panel windows below. Likewise, the barn exhibits a series of windows loft doors, and white painted cross braces on the lost doors that combine to make the barn a balanced creation above and beyond its pure functionality.

In contrast with the Moon Ranch a small dirt roofed cabin a few kilometers from the Moon Ranch does not show at all the same care for symmetry. Where a window was needed the builder opened up the wall to the desired size. The other various opening were not balanced with one another. The two buildings both fulfilled their functional purpose, one is thoughtfully styled to look well finished, while the other has the haphazard appearance of quick, makeshift work.

One of the most simple, yet outstanding aspects of the log buildings of the Chilcotin was the use of the dirt roof for insulative comfort. The dirt roof was an ingeneous example of functionality that had no basis in style. The form of the roof was substantial in construction to hold the weight of sodden earth, and of a gentle pitch to prevent roof erosion. Functionally, the residents were snug, but nobody flaunted the fact that their house or cabin had a dirt roof. To the more wealthy the dirt roof might have been a sign of poverty. There were no substantial houses or barns that used a dirt roof.

There are two log houses in Alexis Creek, and although they are separated by twenty years in age, they are identical in almost every respect. They are full two story houses with such an extreme gambrel roof shape as to be almost Mansard in style. While the roof shape does provide additional second story head room, the originality of its appearance speaks greatly for the particular desires of the builder and owner. The type of these houses was foreign to the Chilcotin because no other similar log houses were located in the study area. Either the style must not have been too esteemed by other residents or the extra cost of construction was not considered worth while for no other similar houses were built subsequent to these two in Alexis Creek.

In 1875 Mr. Cotton arrived in the Chilcotin from

England. He was a man of means and so had built, in line with his perception of what a Western ranch should be like, a large, two and one-half story house (see Plate VII). This ranch house was more mansion than house, and was stylistically better than the rest of the Chilcotin log houses. The mansion was bisected with two gable roofed halves facing the front of the building and connected along the sides by a Mansard-like hip roof plan. The gable roofed halves are connected along the front by large porches on the first and second floors. The building has totally symmetrical window, entrance, and chimney locations which complete the proper look of this most impressive log building. Personal preference and stylistic demands contributed significantly to the form that this building has. Other designs would have been easier to build or more efficient to heat, yet the demands of the builder forced the evolution of this particular building. Likewise, the barn has a similar proportions and quality to the ranch mansion. The barn had a gambrel roof and hewn logs, both indications of quality construction. Both the ranch house and the barn show that while the log building may often indicate the humblest of buildings, for those who had the capital to build any type of building, log construction did indicate something of the personal preference of the builder and state something of his frontier existence.

The Agnes Moon ranch used log construction extensively for the ranch house, the original homestead cabin, and various barns, sheds and outbuildings. The construction was basic and simple, except for the more ornate ranch house. A progression of building uses can be seen in an examination of the ranch buildings. What is now a shed was at one time the original cabin in which the Moon family lived. The barn has gone through changes and additions as increased production called for increased storage and work space. The present guest house was originally a bunk house for ranch hands. Through all of these functional changes, log construction methods appear to be the preferred type of construction. Personal style appears to be of low priority as the log buildings are all simple structures built to enclose space and keep the occupants buffered from the weather.

The original Meldrum cabin shows the evolutionary nature of pioneer log construction. Over time the cabin was expanded into a double pen building with the covered area in the centre closed in to form a walled storage area. The various log additions are put together with several notch types, including full dovetail, saddle, "V" notches, and square notches. This would indicate construction at various times by various builders, each using their personal preference for notch types. The building was totally functional, with a roof of soil and

with solid wooden walls over 20 centimeters thick. The Meldrum cabin looks very unattractive, but simply and cheaply fulfills the need at hand.

A close examination of the log buildings recorded during the field work required for this study indicated that form, function, and style are highly interrelated aspects of log building design and construction. At times, form and function were combined to produce a highly workable and useful building that was never intended to be beautiful or stylish. The more beautiful log buildings often possessed a symmetry or formality that seemed somehow out of place when used on the frontier. It was often the personal preferences of the builder and the effects of local factors which dictated the extent that the trilogy of form, function, and style determined log building morphology.

The Effects of the Natural Environment of Log Buildings

The geographic determinist has, along with the sidewalk logic of the non-academic, put much faith in the guiding effects of the physical environment in shaping the practices of people. The possibilist, recoiling from this theory, wanted to throw open the whole realm of possibilities to explain the diversity of culturally produced patterns. It became clear while investigating log buildings that, in fact, the physical environment had

indeed influenced the form, development and extent of log housing in the study area.

Lacking a nearby and inexpensive source of sawn lumber the early residents of the Chilcotin and Kettle Valley turned to wood in its unprocessed state to erect houses, barns, and outbuildings. The winters demanded a strong, heat efficient building that would protect the occupants from the rigors of -30°C. temperatures. The trees used for constructing log buildings in these areas were mostly lodgepole pine, whitebark pine, spruce, and in the Kettle Valley, western larch. These trees are tall and straight with little taper; ideal for building log houses because their size makes them easy to fall and arrange into walls, joists, rafters, and the other parts of a log house or barn. The wood itself is light and easy to work, and with care the buildings would last many decades.

In many ways the physical environment encouraged the use of logs as a primary building material. The coniferous trees of the Kettle Valley grow on the slopes and ridge tops of the surrounding mountains and the bioclimatic environment here is such that coniferous trees do not reach a great height or diameter when they are mature. The Douglas fir is appreciably smaller than its coastal counterpart, while the lodgepole pine or western larch has a diameter of only fifty centimeters when mature. It

was easy for the log house builder to get logs of twenty to thirty meters in length, while the log buildings themselves seldom had a wall longer than fifteen meters. The rot resistent qualitites of the larch made it a prized species for the bottom few courses of logs.

The conifers of the Chilcotin are mainly lodgepole pine and Douglas fir. Like the Kettle Valley, the Chilcotin conifers are small in size and ideal for log buildings. A three hundred year old Douglas fir near Williams Lake had a diameter of only sixty centimeters. By contrast, a three hundred year old Douglas fir growing in coastal British Columbia would be sixty meters tall and have a breast height diameter of 250 centimeters, which does not make a very useful log from which to fashion a log house. Hence, in many ways the physical environment of the study areas made it relatively easy to use log building methods to produce shelter.

The mixed conifer and deciduous forests and the interstitial grasslands provided an attractive environment for the cattleman. The grasslands provided immediate food for livestock and minimized the immediate need for land clearing which was necessary in other areas to achieve an initial return on pioneering energies. The open grasslands allowed easy access to the needed conifers, which grew in groves on the elevated areas of the study sites.

The extreme temperature variations between summer and winter indicate the need for thermally efficient buildings if the occupants were to keep warm during the winter and cool during the summer. Houses were needed that would be warm enough in the winter to circumvent the need to work full time to cut, split, and transport enough wood to feed a woodburning stove or fireplace. In general, the low humidity and rainfall insured that log buildings would be long lived and not suffer greatly from wood decay.

The three environmental factors; one, a productive landscape that encouraged agriculture, mining and other settlement, two, a climate that required houses to be built which were warm in the winter and cool in the summer, and three, an abundant vegetation cover that was physiologically well suited to log building construction all combined to produce a log building well suited to the landscape. Add to this the low cost and immediate availability of logs for construction when compared to wood for framing. The pioneer had few logical alternatives other than log construction.

Technical Competence, Acquired Skills and Adaptations

The human organism is rivaled by few others in its virtual lack of specificity of site and environment. Ingenuity, omnivorous dietary requirements, and strength

have given humans an ability to enter, colonize, and even modify the natural landscape to meet more accurately the human ideals of a home territory. Buckminster Fuller has investigated the feasibility of a dome built over Manhatten Island or Montreal to maintain constant 20°C. temperatures. At the same time thousands of hectares of British Columbia forest have systematically been modified from mixed species stands of 200-300 year old trees to single species stand of trees growing in tree farms.

Comparatively, the settlers of the Kettle Valley and Chilcotin study areas adopted ideas in their own way and at their own scale. It appears that few of the settlers came from natural or cultural landscapes that resembled that of the Chilcotin or Kettle Valley. Rather, the urban-industrial regions of eastern Canada, Europe, and the United States contributed many of the early inhabitants to the study area, with the bulk of the remainder emmigrating from the developed agricultural landscapes of the United States and England.

The settlers of both study areas arrived with a variety of skills and knowledge, but the united initiative to do well in this new homeland fostered the sharing of ideas, and in some cases, labour, to make western homesteading a reality. There were no building contractors nor any supply centres within reasonable distance. Permanent shelter was to depend on log construction methods

to establish comfortable buildings for the settlers, their animals, and their belongings. Both study areas developed virtual self-sufficiency with minimum input from extra-regional sources and with local social and agricultural development relying on local initiative.

While collectively, the settlers of the study areas shared a common goal, their personal tools of self, knowledge, time, and care lead to a diverse array of log buildings that commonly shared little more than rectangular shape, gable roof type, and a farmhouse/barn/outbuilding homestead plan. The result of personal diversity lead to many different notch styles and levels of quality. Overriding the apparent diversity was the willingness to share ideas and the receptiveness of settlers to accept better methods of putting together a log building. It was the willingness to examine, test, and adopt new log building methods that helped to spread and develop log building. The willingness of the settlers to adopt new ideas lessens the value of an ethnic based explanation of log building types and diffusion.

The adaptations of the western settler were rooted in the causative effects of time and place. Most of the early residents of the study areas were able to handle the basic woodworking tools, such as an axe, froe, and whip saw with passing competence. The raw western lands

did not yield a livelihood for carpenters or other woodworkers because the West was a region where most settlers were resident handimen no matter how crude the resulting product was. If the settler and his neighbour could not erect a building it went unbuilt. Furthermore, the end of the nineteenth century was, for western North American settlement, a period when less work was sent out to local tradesmen. The knowledge required to undertake and complete most farm and ranch related buildings was held by the settlers themselves. So, while time and place provided an area which demanded a do-it-yourself knowledge during a period of relative self sufficiency, the result was anything but a universally high level of quality log buildings.

The acquisition of manual skills is based on the development of the manual dexterity and co-ordination necessary to apply the learned methodology of the task at hand. This was the situation that enveloped many of the settlers who contributed to the log building patterns of the Kettle Valley and Chilcotin study areas. It appears that relatively few people had an expert or even a well grounded experience in building log houses and barns when they arrived. This writer would maintain that most determined and observant adults, after seeing other log buildings, could construct log buildings of their own. This was the situation in both study areas

to somewhat differing degrees; settlers from England, Scotland, the Prairies, the Great Plains, and other areas where log housing was not commonplace were caught up in the North American quest for settlement opportunity and found themselves facing the uncertainties of the British Columbia frontier. There were no local sawmills and insufficient personal capital to supply lumber. The most appealing and practical alternative was the use of logs to build the necessary buildings.

The researcher today finds great variation in the quality of log buildings. While weather, use, and abuse may age some building beyond their years, some basic components of construction, such as design, notch type, quality of construction, axework, and attention to detail indicate the competence of the builder. It would appear from the study of a completed log building that its construction would be rather simple. Yet there is great variation in the quality of the handiwork of log buildings. The relative quality of a ranch's log buildings may also indicate the knowledge and skill with which the rancher approaches other ranch activities.

As with any manual or methodological skill, the pioneer was frequently in a position to learn and practice his log building skills. Familiarity bred greater accomplishment and skill. A developing knowledge of mechanics and levers, plus passing knowledge in general

building construction, would surely assist the uninitiated log builder to adapt to the difficulties and values of working with logs to produce buildings. There appears to have been a real spirit, perhaps a pioneer spirit, of assistance and service to one's fellow settler. Through the informal information and assistance given by neighbours, the pioneer could learn new and better methods, or in fact, get neighbours to help raise the necessary buildings. It is felt that through the assistance of more knowledgeable community members, plus the demands on each settler to provide labor on another rancher's projects, the technical skills within the community improved, and even flourished, so that log building techniques became well spread and well learned in a rather short time.

The pioneer came into a land which to him was unfamiliar and environmentally hostile. There were no manuals or how-to books to consult. There were no relevant training opportunities for the apprehensive settler. All knowledge came from previous experience, common sense, and local assistance. For housing, the log building was expedient, so the new settler did not need an ethnic background of log construction experience to produce a useful, if not beautiful, log cabin. One early settler, arriving too late in the fall to build a substantial log cabin, lived out his first winter in a two meter wide,

three meter long, and one meter high log hovel that was snug and easy to heat. The following spring the first work was the completion of a large and more comfortable cabin.

An examination of the photographic records or actual log buildings will indicate a great range in the basic features and quality of the buildings. An investigation of the cultural background of the settlers themselves would indicate that many of them could not possibly have any practical log building skills upon arriving in Western Canada. Their story, then, is one of acquiring and adapting skills to the necessary level of technical competence. The ultimate test was the erection of a log building to meet the settler's needs of the giving of competent assistance to his neighbour. The variety of log buildings types, and qualities is what would be expected from a community where there is no traditional demand for uniformity, where individual skills are differentially acquired to varying levels of compet nce, and where some builders are good at the task while others are indifferent to the whole process. The process is indicative of how education and the acquisition of skills fulfill the desire to stay alive and to exist in a comfortable state. Necessity and lack of alternatives forced most settlers to accept the log building as the only type of building; some even developed a real skill

in the construction of log buildings and an appreciation of their value.

The Effects of Ethnic Background

Folk housing has often been described as a product of culture which is ingrained and slow to change. Those researchers studying folk housing in the eastern and central United States have maintained the premise that reflections of a settler's ethnic and regional heritage could be found mirrored in the form and function of the log buildings which the settlers built. Such was the initial basis of this thesis dealing with log buildings in British Columbia. Library research and field work was undertaken to determine the effects of ethnic background on the types and styles of log buildings in British Columbia. Log buildings were selected as the research effort due to their folk and hand made nature, the initial importance and "purity" of log buildings in the settlement history of British Columbia, and the relative remoteness of those areas with many surviving log buildings.

It has since been established that while ethnicity may have played a key role in the evolution of the log buildings of Ontario, Pennsylvania, and other eastern areas such was not the situation in the two areas examined in this study. Footnote Number 77 lists many of the

early settlers and their homelands. Both the surnames and places of origin indicate a settlement population without a lot of previous log building experience. There appears to be several reasons for this:

1) A lack of concentration of ethnic groups in the study areas.

2) A diversity of previous experience that diluted the possible ethnic experiences of British Columbia settlers.

3) The effect of popular ideas and communication which spread information and lessened the effects of pure cultural influences.

4) A settlement period that occurred late in the settlement phase of North American history.

A study of the cultural and ethnic backgrounds of settlers of the Kettle Valley and Chilcotin study areas indicates a multiplicity of birthplaces that gave an ethnically and culturally mixed settler population. Kettle Valley pioneers such as the Harpur's from North Hampton, England, Peter Nicholson from Holland, Edna Bonnett of Suffolk, England, Carl Thomet of Switzerland (via the United States), and Bombini of Calabria, Italy indicate the spectrum of nationalities that might impart their knowledge and precepts of the British Columbian log building landscape. The Chilcotin study area had a nearly equal diversity of early residents, such as MacDonald, McCauley, Murphy, Stephenson, Dunlevey, Harper, or McKay. The final conclusion is that a cursory examination of the settlers of both study areas does not indicate

origins in any single, or even a few well delineated ethnic or cultural groups. Further, many of the culture groups represented, such as English, Scotch, Irish, Dutch, or Italian do not have a cultural heritage of building with logs.

The research work of Glassie, Kniffen, Hart, or Weslager all rely on the fact that primarily German or Scandinavian settlers and secondly, Scoth-Irish receptors, built the ethnically defined log buildings of the eastern regions of the United States. The occurance of even the individual German or Swede is rare in the two areas examined. The log buildings that dot the ranching lands of the study areas were products of necessity which were obvious in their design. The most simplistic know-how came in the Chilcotin or Kettle Valley in the minds and hands of virtually all of the settlers, with some better endowed than others. The more experienced log builders or the more superior techniques spread and filtered their way through their respective regions to subtly enhance, but not markedly change, the pattern of log house building that was emerging in these two areas of southern British Columbia.

The settlers in the Chilcotin and Kettle Valley had acquired very diverse skills before moving into the Canadian West to homestead or mine the rolling or mountainous countryside. These settlers were brave and will-

ing to try their hand at any task. This, not ethnic background, was the base on which was built the log housing of southern British Columbia. A survey of aural history tape recordings compiled by the British Columbia Provincial Museum reveals some of the social diversity that existed during the early years of the Kettle Valley. For instance, many of the early settlers of the flume irrigated orchards of the Kettle Valley were British Reserve officers, while concurrently Midway residents ventured into mining, logging and ranching. Shop keepers, hotel owners, police officers, and English bred country gentlemen were also mentioned in the aural history records of the Kettle Valley. The Chilcotin settlers were equally diversified, if not so well raised as their economically more well off neighbours in the Kettle Valley.

The log buildings of the two areas were affected to a significant degree by ideas, stories, and information which flowed throughout the continent during the period of western homesteading. While the early settlement of the Chilcotin occurred in the 1860's and that of the Kettle Valley revolved around the Rock Creek gold rush of the early 1860's the great rush of agricultural settlement in both areas did not occur until the turn of the century. By 1900 the land and railroad companies published glowing accounts of their land holdings while the settler-to-be could find other printed information on

farming, western landscapes, and homesteading techniques. The Victorian pioneer was operating with some acquired knowledge of the homestead venture that he was about to undertake. He was not labouring under a tradition-bound and ill fitting concept of the proper method to settle in a new land while retaining all of the practices of the homeland. For the most part the settler constructing log buildings in the Kettle Valley and Chilcotin was a modern man with ample information at hand, an un ncumbered outlook on pioneering.

With these thoughts in mind the reader would do well to reject any strong connections between ethnic origins and log building styles in the study areas. While such relationships may certainly occur in the older, more vernacular log buildings found in eastern regions of the continent, they appear to be of only peripheral influence in the Chilcotin or Kettle Valley. The result of this realization for this study was to initially dash plans of a tidy typology directly tied to the ethnic background of the builder. But thoughts evolved and more information yielded a varied, but accurate, indication of some of the influences that affected the type, style, and quality of the log buildings which were produced.

The Effects of Available Time

It became apparent to this researcher that one

element that affected the quality of log buildings recorded in the study areas was answered by the question, "How much time did the builder spend on this log building?" With few exceptions the answer to this question, on a building by building basis, will never be known. Yet for the interested researcher this is a question that must be broached and, at least, briefly discussed.

When the settler first arrived at his homestead a number of major tasks faced him. The two most pressing were the construction of permanent shelter and the development of initial income from the pioneer land base. The small log cabin would take only a few days for a man with a horse to construct. Once the basic building for human occupation was secured the rancher had to turn to constructing buildings to house equipment, animals, and any feed he was able to amass. Land clearing, planting, animal tending, and other ranch chores left little time for other activities. Log buildings that were erected to fulfill an immediate need, and initially expected to be replaced in a few years, were often used for decades as more pressing tasks occupied the rancher's time. Some have even persisted to this day, undergoing successively demeaning changes in function; first a cabin, then used as a barn, then a shed, and finally becoming a log built junk pile collecting pieces of scrap metal, old bed frames, pieces of lumber, and everything else too valuable

to throw away.

While "available time" is an unknown factor in its absolute sense, the observant researcher may determine information from the manner in which a building was put together. Perhaps the obvious conclusion upon viewing a shoddily built log barn may be that the builder was underskilled, when, in fact, it may be a case of a competent builder having to hurry to finish the task so as to devote time to more pressing jobs.

Available time would be controlled by two factors; one, pressing environmental or economic condition could force a log builder to cut short his log building project to attend to more important needs, or two, the builder himself could assign only a certain amount of time to a building project because in his mind the building was only of specific value. The log buildings recorded in the Kettle Valley and Chilcotin surely reflect the constraints of time in the manner of construction. Likewise, certain buildings indicate the availability of ample time and the personal conviction to spend as much time on the project as necessary to do the construction task correctly. The stylistic additions to selected buildings recorded in the study areas indicated that certain builders put very few constraints on the amount of time their cherished building projects entailed. It must be concluded that log buildings convey to the interested observer both

tangible and intangible evidence; "available time" belongs in the later group.

The Effects of Personality

The pioneer is often stereotyped as the strong willed, hard working person making his way in the wilderness. In fact, the settlers of the study area are as varied in skills and personality as a group of cosmopolitan urban residents today. The writer would maintain that the individual personalities of the builders would be reflected in the buildings they built. No more could an extremely careful, knowledgeable axeman throw up a poorly notched, small cabin than could one expect the anxious miner to hewn the inside and outside of the logs or cut perfect dovetail corners when he is intent on seeking mineral wealth.

Both environment and personality joined in some cases to suppress development and expansion. Ole Johnson came to Canada from Sweden when he was young and eventually found himself in the Kettle Valley in 1896. There he built a small log cabin and a separate small animal shed. For the sixty years that Ole occupied this homestead along the Kettle River things did not change much. There was no growth or agricultural expansion and Ole's homestead indicates this. One may see that Ole Johnson was not an aggressive agriculturalist like some of the other settlers in the Valley.

Again, Mr. Hume comes to mind when discussing log buildings. He wanted a house that resembled a boat so he added the prow-shaped form to the layout of the house. Personality transgressed all practical and traditional style to produce a building that he himself wanted. Individuality and personal need were integral aspects of the log building scene.

The absolute price of log buildings was low. It required the abundant local resources, personal time, and not much else. The rancher was at liberty to build as large as he wanted, yet excesses were seldom seen in house or barn. The axeman who built the meticulous Kettle Valley log house on the slope high above the river was a man more well meaning than sensible. The hillside location was ideal for its visual qualities, but well removed from the agricultural focus of the Valley. If mining was the economic reason for the building's existance, it seems strange that the builder would spend so much time constructing this log building when prospecting and mineral extraction is so ephemeral. Perhaps the builder was trying to impress someone. Another person building a log cabin along the same hillside did build the traditional cabin of the prospector; small, low, and simple with a minimum of labour.

Few of the 160 log buildings surveyed in the study were substantial or ones signifying a prosperous economy.

While the regions themselves are rich in timber, soil and minerals this fact historically has not always been recognized; the log building generally formed the building type of the economically impoverished or immobile. The ability of a person to function economically at a comfortable standard is partly a function of locale and environment, while concurrently it is a function of an individual's personality.

Each log building makes a statement about the person or persons involved in its planning and construction. The person may be knowledgeable and skillful, but poor and so not able to build a log house that would fully display the person's abilities. The building may indicate that the builder could not be bothered with construction or quality details. As long as the building remained upright and weatherproof it could look backward and simplistic. The wealthy rancher may build with logs because of their low cost, ease, and accessibility--a tribute to his practicality, or the wealthy builder may use logs because of their folk-like appearance--again, a statement about the builder.

It is difficult to determine the exact effect that personality had on the log buildings of the study area. Yet it is difficult to deny that the preferences, ambitions, and constraints of the individual are reflected, in part, in the log buildings he produced. The vernacular

researcher usually looks to the log house as an indicator of ethnic background, landscape identification, or perhaps economic vitality. The log house has not in the past been used as an indicator of personality. The researcher cannot explain the vernacular phenomena simply through diffusion routes or regional patterns. Many research problems are presented to the ambitious worker who attempts to unravel personality influences from the other possible variables modifying the log building pattern. One would have to have contact with the actual builders and become sufficiently well acquainted to actually "learn" their personalities. Finally, the informant would have to be able to separate personality-based log building decisions from the other decisions affecting a log building.

Technological Regression

For those researchers who have written of the log buildings occurring in the Ozarks or other eastern, long settled study areas, the log building appears to be a pure housing type. But for the settlement of the Kettle Valley or Chilcotin the time is not the late 18th or mid 19th centuries, but rather the period from 1900 to 1920. Many of the settlers who took up homesteads or worked mining claims in the Kettle Valley and Chilcotin came to these backwaters from the more technologically advanced urban/

rural complexes of North America. For some settlers the railroad had been a fact of life since childhood and the automobile was a rare reality. But for the pioneer of the two study areas lumber for house and barn construction was rare and even nails were expensive and difficult to transport to the homestead. The building technology in the eastern cities was starting to take on a much more vertical aspect, while small town and farm buildings were based on ample supplies of standardized dimension lumber. No doubt the log house builder must have questioned his new location when he had traded a multi-roomed farm house with hand pumped indoor water in Ontario for a single room log hut with low headroom, a single window, and a running creek for the water supply.

What was needed, and in fact quickly adapted to, was a local or vernacular type of building that was simple, quick to erect, and able to protect the occupants from at least the extremes of the weather. A cave or covered hollow in a hillside would have worked, albeit distant from the North American ideal of the house. Stone would have worked also, although it was more time consuming and difficult to work, and called for skills alien to the North American builder's preoccupation with wood as the premier building material. The log building appears to have been almost universally accepted in the West, where sawn lumber was not easily available, but trees

were plentiful. It appears that little experimentation had been accomplished during the past two hundred years of North American log building.

By the 1920's much of the continent was linked by railroads and highways of various qualities. The array of goods and services available to the metropolises was quite extensive. By comparison, the western Canadian log house builder was operating in a cultural void. His land was new to the point that roads were rare and manufactured goods were difficult to acquire. The Kettle Valley had a scarcity of lumber even in the 1940's. But the hardy pioneer persevered to fulfill his dreams. The simplicity and materialistically impoverished nature of most log buildings does not compare at all favourably to the alternatives available in other parts of the country. The settler had to regress technologically to exist in the western frontier away from the goods and services which were easily available in the east. While the Kettle Valley settler was still grubbing stumps, the mid-continent farmer was taking delivery of a steam powered tractor. Some Kettle Valley ranchers still used horse drawn balers and hay mowers until the early 1950's. Yet to the settlers of the two study areas the Kettle Valley and Chilcotin must have seemed superior to other farming regions.

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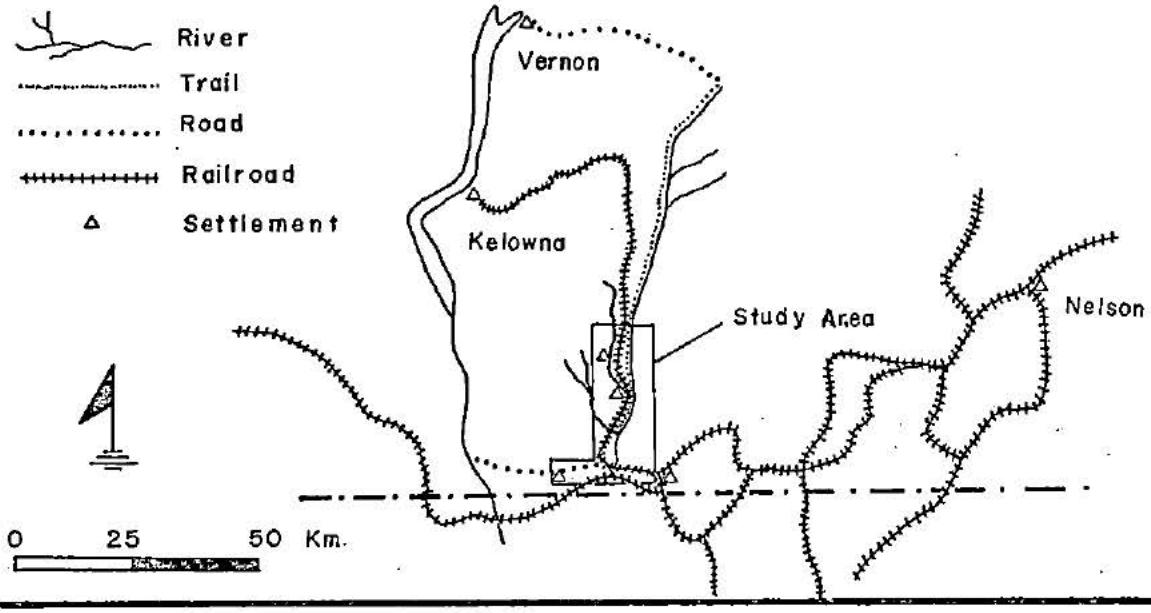
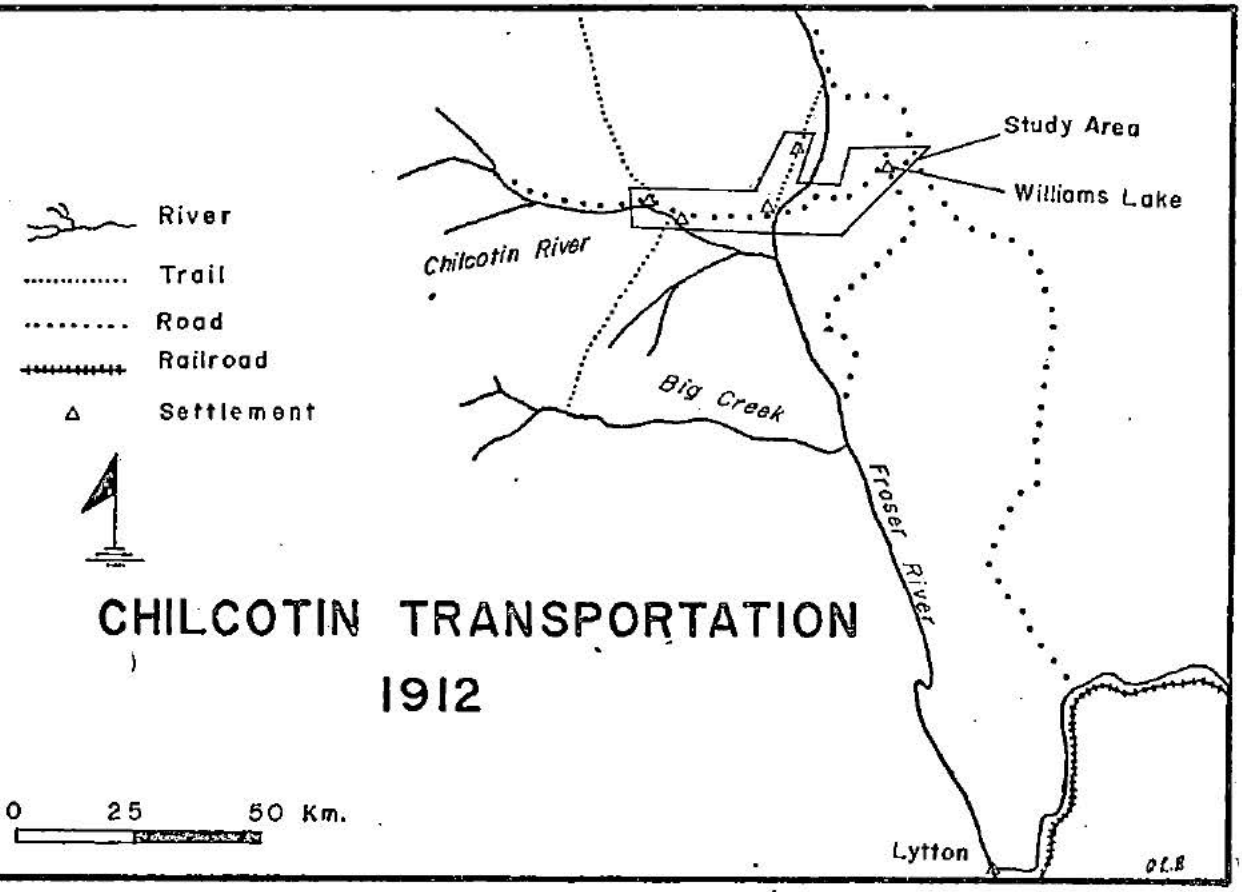
KETTLE VALLEY TRANSPORTATION
1912





CHILCOTIN TRANSPORTATION
1912

The people of the Chilcotin and Kettle Valley were part of a limited anomally--people who had regressed technologically. For those prophesying the inevitability of technology the study areas indicate that technology is not spatially or temporally inevitable. The economist could assess the productivity, growth rate, investment potential, or value-added to products to find that the economic health of the study areas was limited, with little hope on the horizon because of the basic, non-technologial footing of the local economy. For the historical geographer the study of log buildings provides a similar conclusion via an alternate perspective. The buildings on the land were ultra simplistic, in many cases less complicated and substantial than a modern one car garage. Yet it was within these simple, crude ranch buildings that the settler's family lived, where economic and production decisions crucial to the region were made, where capital investment was concentrated, and where the social contacts were established that made the dispersed settlement patterns humanly possible.

Conclusion

Many geographers mentioned previously in this study have spoken highly of the value of rural and vernacular buildings as indicators of culture and geographic patterns. It is difficult to derive significant conclusions directly

from the data collected in the study of log buildings, but rather indications and images may be determined. It is clear that such diverse factors as personality, skill, available time, ethnic background, and the trilogy of form, function, and style contributed to the pattern of log building constructed within the two study areas. These patterns emerged amidst an environment of poverty and technological regression.

The final chapter of this study will summarize the information collected to date. It will also draw conclusions and offer suggestions for further study.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

This study has undertaken an examination of log buildings in southern British Columbia to develop insight into the value of log buildings as indicators of settlement geography. It appears that the widely dispersed and relic nature of log buildings provides the contemporary researcher with cultural artifacts which are easily studied. Unfortunately, the perishable nature of log buildings requires that the buildings be examined soon if they are to be in great enough numbers to allow a thorough study to be completed.

Many other studies have been completed by other researchers using rural buildings of various types as indicators of the evolution of the rural landscape. The literature relative to this study may be divided into two themes; 1) studies which deal with the regional development and spread of log buildings, and 2) studies which deal with specific groups or types of log buildings. It appears that very little work has been accomplished which deals with the origins and development of the Canadian log building. Ultimately, it appears that log building was spatially and chronologically static, evolv-

ing slowly by local and exotic innovation and development.

This study has used a small scale research plan in which small study areas were located and a detailed examination of each log building within the area was undertaken. This plan depends on the selection of proper study areas which meet the criteria of having, 1) abundant log buildings, 2) an isolated location, 3) study areas spatially separate from one another, 4) different physical environments from one another, and 5) different economic histories from one another. Field study data was recorded with a Field Site Checklist and a detailed photographic record. Interviews with local informants clarified observational data.

The findings of the study may be listed under the following headings:

1. Similarity of design, use, and construction within each study area.
2. Similarities in the log buildings between both study areas.
3. Differences between the log buildings of the two study areas.

The log buildings of the Kettle Valley were intended primarily for human habitation, were built with "V" corner notches, used shake covered gable roofs, and were generally 20-30% longer than they were wide. Likewise, the Chilcotin log buildings were intended for human habitation, had "V", dovetail, or saddle notched corners in almost

equal proportion, had dirt or shake covered gable roofs, and were also 20-30% longer than they are wide. Points of difference which exist among the log buildings of the two study areas centers on the variation in the proportion of each building type which combine to make up the total sample of each study area, and the use of dirt roofs in the Chilcotin while the Kettle Valley had no dirt roofed log buildings.

Log buildings can be indicators of many historical geographical factors. Form, function, and style are three components that are manipulated in various ways so that the builder achieves the desired result in the log buildings which he constructs. The natural environments of the study areas have required snug winter housing, while the tall, straight, small diameter coniferous stands of the study areas have proven ideal for the construction of log buildings. The pioneers who settled in the Kettle Valley and Chilcotin did not arrive in the West with a universally well founded knowledge of log building techniques and craftsmanship. While craftsmen did construct some log buildings, the bulk of buildings were crudely built, probably by people who acquired their log building skills upon arriving in the settlement landscape. The ethnic background of the builder appears to have only peripheral effects on the form, function, and style of the log buildings. At best, ethnic information

is difficult to come by and unreliable at its source. It may be assumed, although difficult to document, that some log buildings were affected by the available time which the builder could affort to spend on it. Furthermore, and likewise difficult to document, was the effect the personality of the builder had on the type and quality of log buildings which he produced. The pioneer who built with logs was frequently building a type and quality of building which was decidedly inferior and simplistic when compared to the buildings these new western settlers had used in their previous homelands. The appeal of the frontier must have been strong to encourage the settler to accept a ranchstead which was much less refined than what existed in other agricultural regions of the continent.

Conclusions

This study began as a examination of the relationships between British Columbia log buildings and the ethnic backgrounds of the builders. The basic premise was that ethnic background taught the person concepts and construction methodologies of log building construction. Field investigation soon indicated that the form and style of a log building was not simply the result of ethnicity. Generally, the log buildings studied were a product of people from regions with no background of log building

in their cultural histories. The simplistic nature of most log buildings renders the study of stylistic or formational features of log buildings difficult. Relating these features to ethnic causes becomes nearly impossible. Many of the settlers had experienced a variety of settlements as they moved across the continent. It is not unreasonable that they may have learned or adopted house building ideas that would deny their ethnic origins. The study areas investigated in this study did not have a core of Scandinavian or German log house builders, yet these are the traditional originators and diffusers of log building skills in the eastern regions of the continent. The result of an attempt to link culture and log buildings in British Columbia is inconclusive.

The literature finds that wholesale importation of European log building styles and methods may have occurred in North America with the German or Scandinavian settlers of the 1700's, but such unfailing use of European building types simply did not occur in western Canada by 1900. The immigrant with no log building cultural heritage to draw on built with logs just as immigrants from regions of long standing log building tradition did.

The log building may have been the conceptualized standard by which the potential settler viewed his idealized living place once he reached the western ranch lands. Many settlers arrived in the settlement areas with a

repertoire of usable woodworking and construction knowledge. Yet many others settled with a dream and a desire for personal advancement, but did not have the skills necessary to initially work effectively with the resources of their new settlement region. The pioneer could exist in this new environment, in part, because log house and barn construction is manually fatiguing but methodologically simple. The acquisition of the requisite skills obviously occurred because of the multiplicity of log buildings found throughout the study areas. Many practitioners were learning their log building skills as they built their first log cabin or small barn; the true craftsmen were few and far between.

Throughout British Columbia the log building was used as a primary structure for settlement enclaves and frontier homesteads. Quite simply stated; without a local supply of lumber, log construction was the only reasonable approach to the building of houses, barns, and town buildings. The basic building techniques were simple and obvious. The most inexperienced settler could erect a passable structure. If inexperience produced a leaky roof or drafty log walls a wooden plug or an extra application of chinking would repair the deficency in short order. While some settlers chose log construction as a necessary, but definitely backwoods approach to building, others were craftsmen who built with logs out of pride

and intelligence. The log building, if constructed properly, formed the least expensive, most long-lived, comfortable, and perhaps quickest type of building to construct.

More than simply a shelter that the pioneer built, the log building serves as a broad indicator of the individual variability of each and every person involved in the construction of log buildings. Within the study areas certain design elements, for example, the gable roof, wood shingle roofing, horizontal log construction, or a lack of a building foundation are nearly universal and indicate local knowledge or convention. Other design elements and aspects of construction handiwork were the result of the individual builder. Individual perceptions of the settlement task added further variable aspects into the resulting log building.

Today, the log building serves as a reminder of the relative economic condition of the settler and his community. Crop statistics or cattle production figures may never have been kept, save in the rancher's memory or in a now discarded ledger, but the large log barn reminds us that prosperity was not foreign to the study area. Log buildings located in the study areas indicate something about the pioneer's knowledge and perception of his surroundings. The settler's understanding of his idealized role, "his place", is perhaps indicated by the use

of the log building.

The historical context of Canada is such that few elements of the landscape convey the historical continuity that binds Canada together. One vernacular element that is common through many regions of the country is the log building. For this reason of commonality this study holds importance. Further, the log building, regardless of its value as an historical artifact, is a perishable object. The study of the log building today, rather than at some later date insures that there are still substantial numbers of examples to study.

The geographer is alert to the location of new methods or tools through which to measure and understand the world. This study uses log buildings as an intrinsically valuable culture item worthy of study in its own right. Furthermore, the log building, because of its relative durability and ubiquity, serves as a cultural indicator. The log buildings of the Kettle Valley and the Chilcotin served as cultural indicators under the following topics, form, function, style, the effects of the natural environment, technical competence and acquired skills, the effects of culture and ethnicity, the effects of available time, the effects of personality, and technological regression.

Suggestions for Further Study

There are a number of aspects of research which should

be investigated in future studies of the log buildings of British Columbia. I would like to suggest these in the hope of directing, to some degree, the work of other investigators.

Probably the most pressing need is simply the instigation of more field studies throughout the Province. These studies should collect data and photographs of log buildings of all types to broaden the meager data base which cultural geographers now have. While it would be most beneficial for future studies to be carried out in an organized manner, the immense logistic task would probably exclude the systematic, province-wide study from occurring. The method and organization presented in this study stands as one possible organizational format.

It is suggested that more diagnostic elements of log buildings be sought, categorized, and analyzed. For instance, ranchstead layout, house or barn interior layouts, axwork techniques, chimney location, or building embellishments could possibly be used to further classify and understand log buildings. It may be that no meaningful patterns can be derived from the itemization of such seemingly trivial aspects as chimney location or interior partitioning of ranch houses, but the value will not be known unless the diagnosis of log buildings is pursued to greater depths than has been accomplished in this study.

The potential investigator is encouraged to interview

local informants in the field in a systematic and thorough manner. The conservative, almost suspicious nature of many of the people interviewing in the field calls for informal interview techniques. Local informants possess a wealth of localized information that has never been recorded and only through future interviews will this information be gathered to explain the origins and development of the log building in the settlement frontier of British Columbia. Only those who actually experienced the initial settlement period of a region or who actually notched logs together to erect a log house and barn can provide accurate answers to the numerous questions the researcher asks.

This study has found that ethnic relationships did not grealty affect the type, form, or quality of the log buildings of the Kettle Valley and Chilcotin. It would be valuable for the understanding of the province-wide development of log buildings for research to be carried out in communities with a more homogeneous ethnic or national population stock. For instance, field work carried out in a primarily Swedish settlement community could produce conclusions very much different from those reached in this study

Postscript

The pioneer in the Chilcotin and Kettle Valley was

somewhat peculiar; he was involved in some of the last frontier settlement activities in North America. Much of the rest of the continent had gone through the initial settlement phase of their development one hundred or more years previous. The western Canadian settler, even through the 1930's and 1940's, was living out a continental dream which was rapidly coming to an end. The continent was becoming mobile, with the full development of both the railroad and the automobile and associated road systems. Yet the western Canadian log house builder was forced by local economics, and perhaps personal preference, to use logs to produce simple, even crude, log housing at the same time that his prairie counterpart was building large, ornate, and airy Victorian farm houses. The log building was to remain, until the last decade, a symbol of back breaking pioneering, of simplicity, crudeness, and relative poverty. The technological regression involved in log building contrasted markedly with the technological leaps most other North Americans were taking.

FOOTNOTES

1. Log buildings were not found exclusively in forested regions. The log building can be found even in the semi-arid grassland and grazing regions of North America. In these environments it was built of small logs transported from mountain top forest groves or built from often twisted cottonwood and other riparian vegetation of suitable stature. Fine examples of these may be seen in: M. Brown and W. Felton, Before Barbed Wire, L. A. Huffman, Photographer on Horseback (New York: Gramhall House, 1956), pp. 45, 50, 52, 56, 66.

2. R. E. Pahl, "Trends in Social Geography," in R. Chorley and P. Haggett, eds., Frontiers in Geographical Teaching (London: Methuen and Co., 1970), p. 81.

3. See J. F. Hart, The Look of the Land, M. Newton and L. Pulliam-Di Napoli, "Log Houses as Public Occasions: A Historical Theory", F. Kniffen, "Folk Housing: Key to Diffusion", F. Kniffen and H. Glassie, "Buildings in Wood in the Eastern United States--A Time-Place Perspective", Glassie, Pattern in the Material Folk Culture of the Eastern United States, and C.A. Weslager, The Log Cabin in America.

4. A definition of the work of the settlement geographer can be found in T. G. Jordon, "On the Nature of Settlement Geography", The Professional Geographer 18 (January 1966), p. 27.

5. A suitable definition of the content and research activities of the historical geographer was arrived at by combining the definitions of V. S. Zhehulin, "Some Thoughts on the Subject of Historical Geography", Soviet Geography- Review and Translation 9 (September 1968), p. 570 and A. R. H. Baker, J. Hamshere, and J. Langton, eds., Geographical Interpretations of Historical Sources (New York: Barnes and Noble, Inc., 1970), p. 14.

6. Weslager is one of the few writers to give substantial attention to the historical basis of log buildings and log construction as it originated in its worldwide culture hearths. The beginnings of log construction is unknown, partly due to the lack of archaeological durability of wood products. Some researchers conclude that the first corner notching originated in Mesolithic time (approximately 10,000 years B.P.) in

the Maglemosian culture of Denmark, southern Sweden, and northern Germany. The Bronze Age (3,000 years B.P.) has provided us with the first physical archaeological remains of notched log dwellings. These remains were found in southern Germany in the Federsee-Moor island settlement of Wasserburg. Weslager and the authorities he consulted feel that it is unlikely that warring, migratory German tribesmen were using log construction in 50-58 B.C.[8] when they marched through Gaul and crossed the Rhine.

Somewhat more recently, the Scandianavian countries have shown a history of advanced woodworking techniques and uses, with the use of log buildings no exception. Log housing during Viking times (800-1000 A.D.) was common, with remains being found in Berka, Sigtuna, and Lund, Sweden. Russian archaeologists have found log construction dating to the fortified towns of the Eleventh and Twelfth centuries.

Weslager, quoting Zelinsky,

> (it) reaches across Eurasia in two broad bands: the first extends through the sub-Arctic forests of Sweden, Finland, and Central and northern Russia, and since the seventeenth century, across Siberia to the Pacific, then, later to Russia America; the second-and the more relevant here-begins in the French Savoy, with a possible minor outlier in Northern Spain and reaches through the mountainous spine of Eurasia at least as far eastward as Iran and possibly Kashmir. Included within it are the rugged areas of southern Germany, Switzerland, Austria, Bohemia, the Carpathians, Transsylvania, and perhaps Turkey.[9]

The historically recent diffusion of log building techniques into North America, allows the diffusion of log building techniques to be more easily traced. Generally, Weslager has found that basic notched log construction diffused from central and northern Europe westward to North America, branching into a southern moving, Atlantic coast wave and a continuing westward moving wave. Log construction also diffused from Russia to Alaska and southward into America.[10]

Kniffen and Glassie have looked into the origins and diffusions of wood construction, especially log construction. They divided wood construction into types and proceeded to discuss each type. Vertical post construction was an extremely widespread, almost ubiquitous, form of construction that probably had its origin in the Near East during Neolithic times.

The method spread throughout Europe, except for Northern Europe, the Mediterranean regions, and Atlantic England. Originally, the posts were pounded into the ground and the interstices filled with clay and straw. By the late Neolithic times the posts were set directly next to one another. This form spread to Russia by 300 B.C., to England in Anglo-Saxon times, and was common in Normandy. Eventually it was used to a limited extent in New England and the Atlantic regions of Canada.

Corner post construction is an old form of log construction which was carried across Europe from Silesia by the Lausitz Urnfield culture in the late Bronze Age, the examples existing in southern Sweden and the Alps. The method consists of vertical, well set posts located at a building's corners, then anchored and supported by horizontal logs set between the corner posts.

Corner notching seems to be a very widespread technique which superseded other types of log construction in regions where the two methods may have at one time been used simultaneously. By the Bronze Age horizontal log construction replaced vertical construction as the most common of log building methods from France to Russia and from Norway to Czechoslovakia.

7. C. A. Weslager, The Log Cabin in America, (New Brunswick, New Jersey; Rutgers University Press, 1969), p.84.

8. C. A. Weslager, op. cit., 1969, p. 85

9. W. Zelinsky in C. A. Weslager, op. cit., (1969), pp. 90-91.

10. F. Kniffen and H. Glassie, "Buildings in Wood in the Eastern United States--A Time-Place Perspective", The Geographical Review 56 (January 1966), pp. 40-66

11. The word "folk" is often used to connote substandard, simple minded, or outdated. The work of the folklorist and the geographer interested in folklore has shifted away from the collection and analysis of folk practices such as songs, music, dress, and stories and has begun to concentrate on material folk objects, such as tools and houses.

In the academic sense "folk" refers to things and practices that are the result of an individual, group, or regional solution to a problem. Something that is folk is not easily subject to technologic change.

Folk practices and materials vary over space, but not time. That is, they are provincial in extent, but long lived in their usefulness and acceptance. By contrast, "popular" practices and materials are a product of communication, rapid change, and outside influence. Popular items tend to vary over time, but not so much over space. An innovation will quickly sweep over a region and rapidly change the popular practices or outlooks of the people, but may soon disappear or lose significance.

12. This example was related to the writer by two ranchers on separate occasions in the Kettle Valley. One of the ranchers was sympathetic to the subsistence lifestyle that the squatters had chosen for themselves. This rancher lamented the loss of the log buildings at the hands of the Forest Service. She also resented the disruption of the lives of the squatters. The other rancher praised the Forest Service for recognizing the serious fire threat to the grazing and timber lands. According to the second rancher, not the least of the successes of the Forest Service was the driving out of the squatters.

13. The writer can remember stopping in the early evening at a log strewn Oregon beach to camp for the night. The most appealing and safest appearing camp site was in amongst a mass of logs piled one on top of another by Pacific storms to form natural log walls.

14. C. A. Weslager has provided valuable information in his determination that two days was all the time that was required to erect a strong, snug, and extremely serviceable log cabin. This two day period allowed for the falling, limbing, and transportating the logs to the building site. It also included the notching of logs and setting them up into walls, the framing and covering of the roof, and the building of a fireplace and chimney. The two day period was with three workers. This was probably quicker than frame construction. Even with a single builder, a finished, snug cabin could be erected in two weeks.

15. J. F. Hart, The Look of the Land (Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1975), p. 153.

16. M. Leach and H. Glassie, A Guide for Collectors of Oral Traditions and Folk Culture Material in Pennsylvania (Harrisburg, Pennsylvania: Pennsylvania Historical and Museum Commission, 1968), p. 55.

17. H. Glassie, Pattern in the Material Folk Culture of the Eastern United States (Philadelphia: University of Pennsylvania Press, 1968), p. 238.

18. R. T. Trindell, "The Geographer, the Archives, and American Colonial History", The Professional Geographer 20 (March 1968). p. 99.

19. J. W. R. Whitehand, "Building Types as a Basis for Settlement Classification", in J. B. Whitlow and P. D. Wood, eds., Essays in Geography for Austin Miller (Reading, England: University of Reading, 1965), p. 291.

20. B. P. Birch, Farmstead Settlement in the North American Corn Belt", Southhampton Research Series in Geography (Southhampton: University of Southhampton, 1966), pp. 25-57.

21. B. P. Birch, op. cit., (1965), p. 45.

22. N. R. Stewart, "The Mark of the Pioneer--Cultural Conservation and the Farm Dwelling", Landscape 15 (1965), pp. 26-28.

23. N. R. Stewart, op. cit., (1965), p. 26.

24. C. A. Weslager, op. cit., (1969), p. 317.

25. J. F. Hart, op, cit., (1975), p. 155.

26. C. A. Weslager, op. cit., (1969), pp. 3-381.

27. C. A. Weslager, op. cit., (1969), p. 92.

28. H. Glassie, op. cit. (1968), pp. 3-316.

29. H. Glassie, "The Impact of the Georgian Form on American Folk Housing", in A. Fife, A. Fife, and H. Glassie, eds., Forms Upon the Frontier--Folklife and Folk Arts in the United States, (Logan Utah: Utah State University Press, 1969), pp. 23-25.

30. The Georgian form is a house of pure, simple, and symetrical lines. The form has a central doorway flanked by equally spaced and sized windows. The central door leads into a wide, central hallway that allows access to two equal sized rooms on each side of the hall. This two room wide and two room deep arrangement produces a square house that is often hip

roofed.

31. F. Kniffen, "Folk Housing: Key to Diffusion", Annals, Association of American Geographers 55 (December 1965), pp. 549-577.

32. T. G. Jordan, "The Texan Appalachia", Annals, Association of American Geographers 60 (September 1970), pp. 409-427.

33. E. J. W. Miller, "The Ozark Culture Region as Revealed by Traditional Materials", Annals, Accociation of American Geographers 58 (March 1969, pp. 51-77.

34. H. Glassie, op. cit. 1968), p. 220.

35. T. G. Jordan, op. cit. (1970, pp. 409-427.

36. F. Kniffen, op. cit., (1965), pp. 549-577.

37. C. A Weslager, op. cit., (1969). pp. 3-361.

38. F. Kniffen and H. Glassie, op. cit., (1966), p. 40.

39. F. Kniffen and H. Glassie, op. cit., (1966), pp. 65-66.

40. F. Kniffen and H. Glassie, op, cit., (1966), p. 41.

41. Today in British Columbia there has been a revival of interest in log building, especially for house construction. Allan Mackie has been very influential in spreading information and interest in log building. He has disseminated the techniques by way of publications and workshops. The more recent practitioners have often used the Scandinavian method of grooving the undersides of the logs so that they fit more closely to the adjacent log below. The grooving is accomplished fairly easily today with a pair of scribers to determine and mark the amount of wood that must be removed from the groove, and by using the nose of a chain saw to cut the groove. The groove is packed with moss or fiberglass insulation to produce a weatherproof joint. The writer has found log buildings being built in both the Kettle Valley and Chilcotin study areas according to the methods taught and diffused by Mackie and his students. It is interesting to note that Swedes settling in the Delaware Valley as early as 1638 used the grooved log method of log building con-

struction, but soon abandoned it in favour of stone and brick construction. Three hundred and forty years later the method is being resurrected in British Columbia.

42. F. Kniffen and H. Glassie, op. cit., (1966), p. 43.

43. A. Fife, A. Fife, and H. Glassie, Forms Upon the Frontier--Folklife and Folk Arts in the United States (Logan, Utah: Utah State University Press, 1969), p. 26.

44. R. T. Trindell, "Buildings in Brick in Colonial North America: The Patterned Brick Houses of New Jersey", in A. Fife, A. Fife, and H. Glassie, Forms Upon the Frontier--Folklife and Folk Arts in the United States (Logan, Utah: Utah State University Press, 1969), p. 26.

45. W. E. Roberts, "The Waggoner Log House Near Paragon, Indiana", in A. Fife, A. Fife, and H. Glassie, Forms Upon the Frontier-Folklife and Folk Arts in the United States (Logan, Utah: Utah State University Press, 1969), pp. 28-31.

46. W. E. Roberts, op. cit., (1969), p. 30

47. P. Sultz, "Architectural Values of Early Frontier Log Structures, in A. Fife, A. Fife, and H. Glassie, Forms Upon the Frontier--Folklife and Folk Arts in the United States (Logan, Utah: Utah State Univessity Press, 1969), pp. 31-40.

48. P. Sultz, op. cit., (1969), p. 31.

49. H. Glassie, op. cit., (1968), pp. 3-316.

50. J. F. Hart, op. cit., (1975), pp. 5-210.

51. J. F. Hart, op. cit., (1975), p. 123.

52. J. F. Hart, op. cit., (1975), p. 24.

53. J. F. Hart, op. cit., (1975), pp. 154-155.

54. M. Leach and H. Glassie, op. cit., (1968), p. 70.

55. J. H. Brunvand, A Guide for Collectors of Folklore in Utah (Salt Lake City, Utah: University of Utah Press, 1971), pp. 3-124.

56. N. R. Stewart, op. cit., (1965), pp. 26-28.

57. N. R. Stewart, op. cit., (1965), p. 27.

58. N. R. Stewart, op. cit., (1965), p. 27.

59. J. J. Winberry, "The Log House in Mexico", Annals, Association of American Geographers 64 (March 1974), pp. 54-69.

60. M. Newton and L. Pulliam Di-Napoli, "Log Houses as Public Occasions: A Historical Theory", Annals, Association of American Geographers 67 (September 1977), pp. 360-383.

61. M. Newton and L. Pulliam Di-Napoli, op. cit., (1977), p. 362.

62. C. R. Gritzner, "Hispano Grist Mills in New Mexico", Annals, Association of American Geographers 64 (December 1974), pp. 514-524.

63. D. Clemson, Living With Logs, (Saanichton, British Columbia: Hancock House Publishers, 1974), pp. 5-94.

64. D. Clemson, op. cit., (1974), p. 7.

65. J. I. Rempel, Building With Wood and Other Aspects of Nineteenth Century Building in Ontario, (Toronto: University of Toronto Press, 1967), pp. 3-287.

66. J. I. Rempel, op. cit., (1967), p. 87.

67. W. W. Kenyon, "The 'Old House' at Albany", The Beaver-Magazine of the North (1965), pp. 48-52.

68. P. R. Wilson, The Beautiful Old Houses of Quebec, (Toronto: University of Toronto Press. 1975), pp. 3-124.

69. B. A. Mackie, Building With Logs, (Prince George, British Columbia: B. A. Mackie, 1977), pp. 3-76.

70. W. Hunt, How to Build and Furnish a Log Cabin, (New York: Collier Books, 1974), pp. 3-166.

71. J. Dunfield, Log Cabin Construction, (Ottawa: n.p., 1974), pp. 1-92.

72. J. I. Rempel, op, cit., (1967), pp. 3-287.

73. F. Kniffen and H. Glassie, op. cit., (1966), pp. 44-60.

74. F. Kniffen and H. Glassie, op, cit., (1966), pp. 40-41.

75. It was found when interviewing some of the older residents that their responses to questions at times seemed vague, defensive, or peculiar. One informant in the Kettle Valley, while ultimately being quite helpful, accused the writer of being everything from a tax assessor, to some sort of government spy, to an author slated to make a huge financial reward from the information this informant was about to give. An informant in the Chilcotin could not seem to remember when he built a number of the log buildings in the Lee's Corner area, yet his memory seemed spry to many details unrelated to this study.

76. The size and proportional shape of log buildings is examined in a basic way by M. Newton and L. Pulliam-Di Napoli in "Log Houses as Public Occasion: A Historial Theory" and J. Rempel in Building With Wood and Other Aspects of Nineteenth Century Building in Ontario.

77. While much vernacular research has operated under the postulate that ethnic and national origins of the builders greatly affect the form, function, and style of the buildings that are built, this is not the case in the Kettle Valley and Chilcotin. Most settlers were directly from the British Isles, which has no log building tradition, or they came from other parts of North America in which no ethnic based pattern of log building existed. The following is a list of settlers and their previous homelands, if known. Their surnames give an impression of their source regions.

Kettle Valley and Area

B. Palmer
A. McMynn
W. Shillcok (Scot.)
D. McNaughton
J. Rushmere
H. Douglas-Hamilton (Eng.)
H. King (Eng.)
T. Cave (Eng.)
E. Harker (Eng.)
R. Glossop (Eng.)
J. MacKenzie (Nova Scotia)
J. Lindsay
C. Mellville
H. Johnson
S. Matthews
J. Zurfluh
S. Auger
C. Charlton
L. Mader
P. Siminoff

Welstead (Eng.)	E. Enniger
Anderson (Eng.)	J. Bertois
E. Smith	W. Murray
J. Dale	A. McDougall
E. Miller	W. Bower
C. Heaven	C. Atwood
R. Knight	W. Williams
N. McInnes	H. Mahan
J. Richter	E. Reynolds
A. Bonnett	R. Sandner
C. Thomet	D. Manly
S. Bombini (Italy)	H, Noseworthy

Chilcotion and Area

G. McDonald (Scot.)	A. Cummings
C. Eilson	T. Hutchinson
T. Willan (Eng.)	M. Cooper
C. Bambrick (Nova Scotia	B. Marston
J. Eobinson (Quebec)	J. Stewart
K. McINtire	J. Reynolds
J. McIntire	R. Cotton
H. Church (Eng.)	T. Morgan
R. Scallan (Ireland)	B. Till
C. Erickson (Finland)	J. Morrison
R. Witte (Wash, U.S.A.)	J. Stewart
G. Blenkinsop (Eng.)	B. Copeland
Q. Wheeler (Eng.)	A. Harvey
B. Barrows (U.S.A.)	C. Richard (Eng.)
H. Guilickson (Wis., U.S.A.)	Bigham (Tenn. U.S.A.)
K. Patrick (South U.S.A.)	Kin Nauie (Peking)
A. Graham (N. Ireland)	H. Bayliff (Eng.)
J. Malone (Conn. U.S.A.)	
W. Coulthare (Dak., U.S.A)	

78. Credit is given to the skethces of log building notch types appearing in the Glossary. They were adapted from; F. Kniffen and H. Glassie, "Buildings in Wood in the Eastern United States--A Time-Place Perspective", The Geographical Review 56 (January 1966), pp. 53, 54, 57. These are the clearest skethces of notch types found by this writer. The notch types shown in the Glossary are those most frequently found in the Kettle Vally and Chilcotin areas.

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APPENDIX

I. GLOSSARY

II. PLATES

GLOSSARY[78]

Aural history

A term describing the collection of sounds, music, folklore, speeches, and remembrances recorded in a high quality and thorough manner. The term is adopted from the Aural History Programme of the Provincial Archives of British Columbia.

Available time

The amount of time a builder spends constructing a log building contributes to the form and quality of the building. The available time may be what is actually available to the builder, or it may be what the builder feels he can spend constructing the building when he considers all the demands on his time.

Cabin

A general term used to describe the small, and simple structure used for human habitation. The cabin may best be defined by its usual lack of quality and complexity rather than simply by its size. See Plate II.

Chilcotin

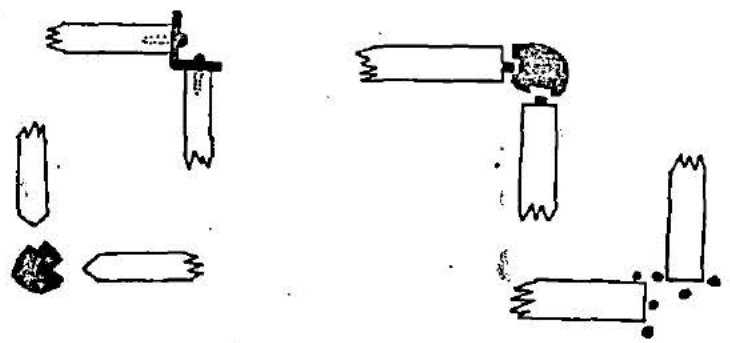
A field study area used in this study. The Chilcotin study area is located on the Fraser Plateau between Williams Lake and Alexis Creek, 590 kilometers north of Vancouver.

Chinking

A combination of materials used to fill the gaps between adjacent logs in the walls of a log building. Chinking was originally mud, straw, moss, and manure in varying proportions. More recently, chinking could be cement and even fiberglass insulation.

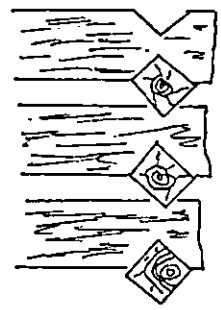
Corner post construction

A log building method in which logs are stacked directly on top of one another and then spiked at each end to vertical logs or planks set at the corners. The logs are not notched at the corners. See Plate VI.



Diamond notch

A notching system that cuts the ends of the logs so that when viewed end-wise the log has a diamond shape. Notches are cut into the top or bottom of these diamond shaped log ends to accept the shape of the adjacent log ends.

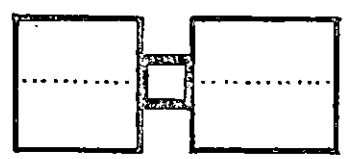


Dirt roof

A method of roofing found in the Chilcotin study areas. This method uses a stout rafter or purlin roof frame which is covered with planks and then topped with thirty centimeters of earth. The earth layer may or may not be covered with a wooden roof to protect it from erosion. The result is an inexpensive and thermally efficient roof system. See Plate II.

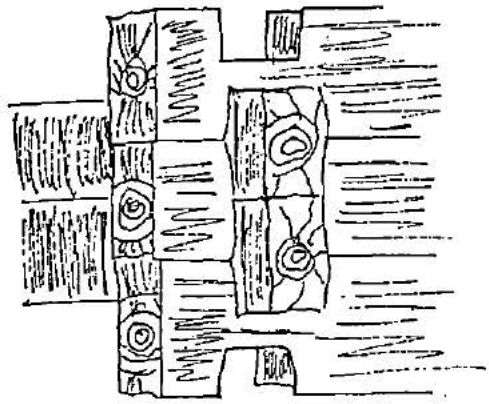
Double pen

This is usually a term reserved for barn layout, but may include house construction. The term describes a building that is made up of two smaller, often square, halves or pens. These pens are built side by side with the pens and the intervening alleyway covered by a continuous roof. On barn construction the alleyway was used as a weatherproof work and loading-unloading area. On houses the method produced a covered central area to use for storage or even as the entrance hallway when a door was installed.



Double notch

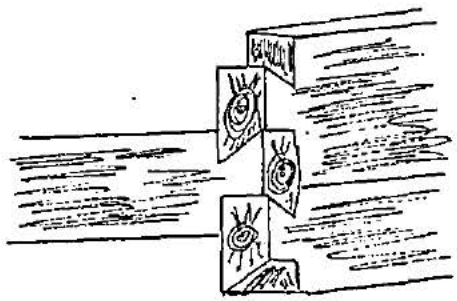
A seldom used notching system that used "T"'s cut into the ends of the logs. The cross piece of the "T" of each log interlock with logs of adjacent walls to hold the log building together.



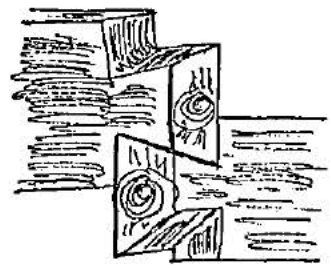
Dovetail notch

The most complex and best notching method for holding logs together in horizontal log buildings. It consists of cutting sloping wedges into the ends of the logs. The wedges have their widest part at the ends of the logs. These wedges interlock with the adjacent logs so that each log is tightly tied to two other logs. This makes a secure and long lasting log building. See Plate V.

Half Dovetail



Full Dovetail



Ethnic relationships

There are possible ethnic relationships which affect the manner in which some log buildings are built. Some researchers have pursued the relationships between ethnicity and the resulting building form and function.

Folk

A term that means a product distinctly separate from the mainstream of popular, contemporary culture. Folk objects or practices are traditional and static in their evolution. Folk objects are regional or ethnic and may be transported to new areas without significant change.

Form

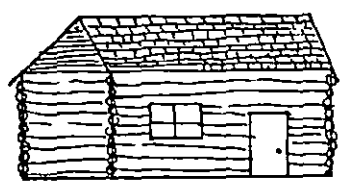
Form is the shape, complexity, and arrangement of the building and parts of the building. The form may evolve from the individual preferences of the builder, or from regional or cultural influences. Form may vary over time or space and so may be used in a diagnostic manner.

Function

Function is closely related to form. Function is the use for which the building is intended. As its function changes a building may be modified or a replacement building constructed. Function affects the design of the building, hence a building will not be too large, too small, or ill fitted to the use to which the building will be put.

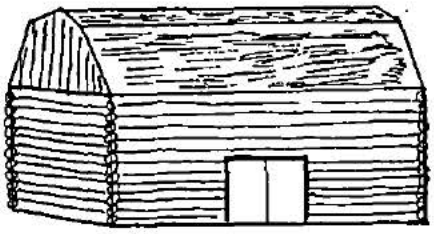
Gable roof

A simple roof form in which the roof pitches rise from the eaves to meet at a ridge above the center of the building. An end view would indicate an inverted "Vee" shape. See Plate III.



Gambrel roof

A complex roof form in which the roof pitches rise from each eave at a steep slope and then break this slope to a more gentle angle, merging at the roof centerline. See Plate III.



Hewn logs

A process in which the rounded faces of the log are cut away to produce flat sides and a more finished timber. Hewing the logs provides better mating surfaces between logs, slightly more interior room that is easier to finish, and a more craftsman like appearance. Sometimes only the inside or inside and outside faces of the logs are hewn. See Plate I.

Historical geography

It is the investigation and understanding of human patterns which are long lived on the land. The study looks toward these patterns as material with intrinsic value and a possible contributory explanation to present cultural geography.

House

Generally, a one or two storey log structure that is usually better built, more complex, and intended to stand for a longer period of time than a cabin.

Kettle Valley

One of the field study areas used in this study. The Kettle Valley is a north/south trending river valley located in the Okanagan Highlands between the Beaverdell and Monashee Ranges. The Kettle Valley is 590 kilometers east of Vancouver and 65 kilometers east of the Okanagan Valley.

Material culture

Material culture is the physical artifacts of all types and sizes that are produced by individuals or settlements. Material culture indicates the variation,

creativity, and landscape influences on settlement. Log buildings are one type of material culture.

Personality

The personality of the builder may be displayed in the type and quality of the log buildings being built. The effects of personality are difficult to determine and virtually impossible to tabulate.

Popular

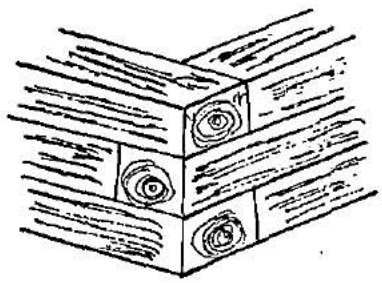
Popular is fashion or practice that changes due to non-functional influences and style. Change is frequent and is based on the easy flow of information. Log buildings have perhaps been influenced by popular fashion.

Rectangularity

A geometrical relationship between the length and width of log buildings. The ratio $(\frac{\text{length}}{\text{width}})$ produces a value in this study of generally between 1.0 and 2.0, with sharp and significant peaks at 1.2-1.3, 1.5, and 2.0 These ratios appear to indicate a non-functional relationship that greatly influences the dimensions of the building.

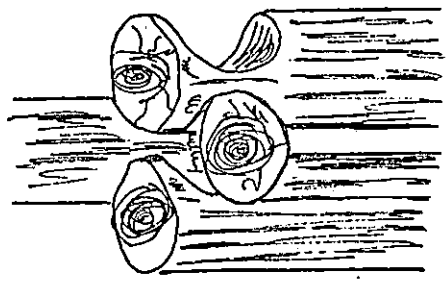
Simple butt joint

A method that stacks logs or timbers without notching. The ends of the logs of adjacent wall are pushed into contact with one another.



Saddle notch

Similar to the "V" notch except that "U" shaped cuts are made in each log end that will accept the rounded circumference of the adjacent log. The saddle may be cut into the top or bottom of the log depending on the preference of the builder. See Plate IV.

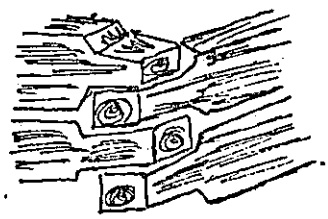


Settlement geography

Settlement geography is an aspect of the discipline that studies the manner and variations by which people distribute themselves on the land. The study could entail dispersed ranchsteads, small agricultural service centers, resource extraction settlements, or large sized urban centers.

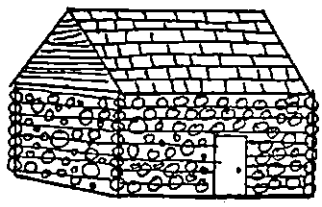
Square notch

A simple log notching method in which wood is cut away from the top and bottom of the log ends to form a flat tongue of wood. This tongue is overlapped with the tongues of the logs of adjacent walls so that logs can be set to form walls. This method does not lock the logs together. See Plate VI.



Stovewood construction

Not a notching system, but rather a log construction method which uses 30-100 centimeter long "firewood" logs. These logs are stacked and surrounded by mortar and in this way the walls of the structure are built up. This method was occasionally used in the Great Lakes region and elsewhere.



Style

Style is the personal and cultural embellishment of a building. It often adds distinctiveness and variation to the basic rectangular log building. Style is not as directly related to the landscape or the use the building is to be put to like form and function are.

Symmetry

Much popular and folk architecture looked toward a balanced formal symmetry of building design. With log buildings most symmetrical embellishments are concentrated in window and door placement because of the inflexibility of logs as a building medium. See Plate VII.

Settlement geography

Settlement geography is an aspect of the discipline that studies the manner and variations by which people distribute themselves on the land. The study could entail dispersed ranchsteads, small agricultural service centers, resource extraction settlements, or large sized urban centers.

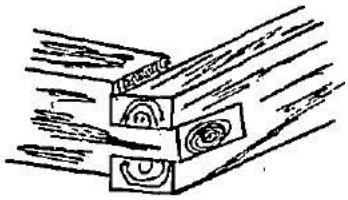
Technological regression

The often crude log buildings of the study areas clearly contrasted with the rapid technological growth occurring in other parts of the continent. In many ways the settlers had to, by choice or local demands, exist outside the technological mainstream of North America.

Tongue and groove notch

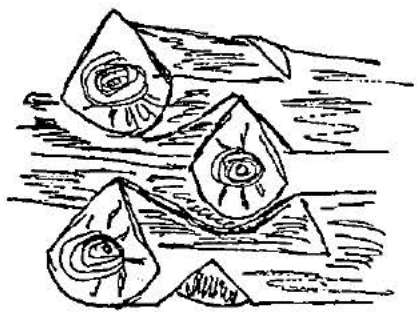
This is a method used more often for fastening roof rafters together, although in some cases it has been used in log building construction. The method consists of cutting a groove longitudinally down the centre of the log to a depth of twenty to thirty

centimeters. This groove accepts a tongue which is cut into the end of the adjacent log.



"V" notch

A method of notching logs together in which deep "V" shaped grooves are cut latitudinally across the ends of the logs. Corresponding flattening of the rounded sides of the adjacent log ends are made to allow the logs to fit tightly into the "V" shaped grooves. See Plate IV.



Vernacular

Buildings, tools, and other material artifacts built from local materials and without the benefit of plans or written descriptions of building methodologies are termed 'vernacular'. Vernacular buildings are "of the people" and do not look to current fashion for style of form. Rather, the buildings are usually simple and traditional in their development.

Vertical log construction

A method of log construction that stands logs up vertically on a sill log and then locks these vertical members together at the top with a substantial top plate. The method lacks the inherent strength and stability of horizontal log construction, although the vertical method does away with handling long logs or the time consuming necessity to accurately notch logs. The method had been most often found in French-speaking Canada.

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Leatherwood, S., Hoechlin, D. and Bunney, G. (eds.) Temecula Gorge-A Resource Inventory, San Diego State University, 1973.

Bunney, G. A Bibliography of Coastal Resources, San Diego, County, Center for Regional Environmental Studies, 1973.

Bunney, G. The Marine Resources of the Regional District of Kitimat-Stikine, The Regional District of Kitimat-Stikine, 1974.

PLATE I-SUPERIOR CRAFTSMANSHIP IN LOG HOUSE BUILDING

On the west slope of the Kettle Valley a superbly constructed small log house was started an undetermined number of years ago. The house was simply, but symmetrically, designed with a central doorway, flanking windows, and centrally located end windows. A sleeping loft provided additional floor space. Notice the equal spacing of the ax strokes that converted round logs into hewn, smooth faced timbers. The building was never finished; the windows and door were never framed, the chinking never put in place, while a stack of hewn building logs lay neatly stacked off to the side. An examination of Plate V. Photo A shows the craftsmanship, uniformity, and quality of the half dovetail notches that hold this building together.

PLATE II-CABINS IN THE CHILCOTIN AND KETTLE VALLEY

Photo A

Photo B

Photo C

The cabin is a small, single room and often quickly built log building which provided initial and usually long lived shelter. Photo A shows a small and crudely built log cabin with an extended gable roof common to the Kettle Valley. Photo B is a well built dirt roofed Chilcotin cabin. The substantial roof purlins indicate the weight of the dirt roof, while the shake roof protects the underlying earth from erosion. Even on this cabin symmetry was important to the builder. Photo C of the original Meldrum Creek School shows the cabin-like design and marginal construction quality which provided only the most basic shelter for student and teacher.

Photo A

Photo B

The barn usually formed the working focus of the early ranchsteads. Animal shelter, feed storage, equipment protection, and workshop were accommodated under one roof. The labour, craft, and materials that went into the barn were often far in excess of that going into all other farm buildings, including the farm house. Photo A is a well built square notched gambrel roofed barn. Photo B is a gable roofed barn with frame or log additions added to increase the interior room of the barn. These additions were often added to barns found in the study areas. Both barns show the rancher's preventative measures to prevent spontaneously generated loft fires by using open ended lofts or by not putting chinking in between the logs.

PLATE IV-"V" AND SADDLE NOTCHES

Photo A

Photo B

Notching methods have often been used to diagnose or differentiate log buildings. The "V" and saddle notches are related to one another in appearance, with the "V" notch being the stronger and more difficult to cut. The "V" notch was much more frequently used in the Kettle Valley and Chilcotin. Photo A is a well executed "V" notch. This notch type locks the logs in place more securely than the saddle notch. Photo B shows a well cut saddle notch, with the cuts occurring on the bottom of the log so as not to collect water and cause decay.

PLATE V-THE HALF AND FULL DOVETAIL NOTCH

Like the dovetail joinery on good cabinent work, the full and half dovetail corner notches used in log buildings indicate techniques of the greatest difficulty and the skills of the true craftsman. The dovetail notch locks logs from rotating and walls from sagging outward. The notch also shows to all observers the evident skills of the builder. Photo A is of a half dovetail notch. The top of each dovetail is sloping, while the bottom is horizontal. Photo B is a full dovetail notch and had top and bottom surfaces sloping towards the middle of the log.

PLATE VI-THE SQUARE NOTCH AND CORNER POST

These building methods represent the simplest in log building methods. Photo A-The Square notch has been an English development in North America to meet the need for a simplified notch type. The notch is easy and quick to construct and allows the use of a saw to cut clean, even notches. The method has the very finished appearance of the dovetail notch, but lacks the strength and longevity of the dovetail notch. Photo B shows corner post construction, which is not a notching system, rather is the quickest and easiest way of stacking and spiking logs together to form crude lod buildings.

PLATE VII-LOG BUILDINGS: A DISAPPEARING LEGACY
(See Following Page for Captions)

Photo A

Photo B

Photo C

A tremenduous variation in the quality, condition, and size of log buildings was recorded while conducting fieldwork for this study. Photo A shows the Cotton Ranch house built in 1880. It exhibits the substantial size of the large ranchsteads which were distributed throughout the range lands of British Columbia. This dovetail built log building exhibits the symmetry common to the more thoughtfully constructed log buildings. Notice the central entrance dividing the two wings with their centrally located windows on the front and sides. The balconies are idential, while both the upper and lower window sashes form square panels. Photo B is the large barn at 108 Mile Ranch south of the Chilcotin study area. The barn is substantially larger than any other log built structure found during the fieldwork session of this study. The barn is built with four log lengths placed end to end to form a total length of approximately thirty-five meters. The large ramp allows full wagon loads of feed to be brought into the loft, while livestock occupy the lower level. Photo C indicates the ultimate temporary nature of the log building. Buildings are lost through shortcomings in their original construction, decay, and fire. This underscores the need to study log buildings before the available field sample size is further reduced.

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Title of Thesis

LOG BUILDINGS IN SOUTHERN BRITISH COLUMBIA

PIONEER ADAPTATION TO HOUSING NEED

IN THE KETTLE VALLEY AND CHILCOTIN

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June , 1980