REHABILITATION OF THE STARR HOUSE
MONROE, OREGON

by
TADA SUTTITUM

A TERMINAL PROJECT
Presented to the Historic Preservation Program:
School of Architecture and Allied Arts
and the Graduate School of the University of Oregon
for the degree of
Master of Science

December 1985

APPROVED: Philip H. Dole

Philip H. Dole

VITA

NAME OF AUTHOR: Tada Suttitum

PLACE OF BIRTH: Bangkok, Thailand

DATE OF BIRTH: December 19, 1958

UNDERGRADUATE AND GRADUATE SCHOOLS ATTENDED:

Silpakorn University, Thailand
University of Oregon, U.S.A.

DEGREES AWARDED:

Bachelor of Architecture (2nd Class Honors), 1981, Silpakorn University
Master of Science, 1985, University of Oregon

AREAS OF SPECIAL INTEREST:

Architecture
Architectural Conservation
Computer Aided Architecture and Historic Preservation
Cultural Resource Survey

PROFESSIONAL EXPERIENCE:

Internship, Cultural Resource Survey, City of Eugene, Oregon, 1985.
Architect, Department of Design and Planning, Bangkok, 1982-84.

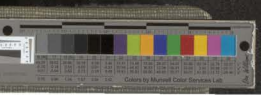
AWARDS AND HONORS:

Travelling Scholarship, Southeast Asian Youth Organization, 1981.
Scholarship, System Analysis (Computer Study), Computing Center, Bangkok, 1983.

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation and thanks to Mr. and Mrs. Brooks, the owners of the Starr House, for permitting me to do the work on their house.

I wish to thank Professor Philip Dole for his invaluable guidance and encouragement as chair of my committee, and as my advisor throughout the years that I have been in the Historic Preservation Program. I also wish to thank Professor Arthur Hawn and Associate Proffessor Robert Melnick for their guidance as members of my committee. I would also like to thank Sally Donovan for her paint study and assistance, and Supakorn Disaphandu for for his help in measuring. In addition I would like to thank Mr. Jiradesh Ousawat, Angeline Cheah, and Ty-wen-Huan for their friendship and assistance. And I wish to thank my parents for their love and support over the years.



DEDICATION

To My Parents

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

General

The Starr house is a vernacular Gothic style farmhouse of Victorian architecture. It is dated ca.1889 and was built for Edwin and Anna Starr. It sits on a part of the first donation land claim in Benton County established by Thomas D. Reeves in 1845.[1] It is legally located at 26845 McFarland Road in Section 8, Township 14 South, Range 5 West of city of Monroe, Benton County, Oregon. It is about 4 miles northwest of Monroe, 2 miles east of Bellfountain and 15 miles southwest of Corvallis.

The house is surrounded by its wheat and rye grass farmland. The property is visually bounded by natural boundaries; hills, creek and woodland. It represents the grass seed farming type which has become the major characteristic of settlement in Willamette Valley farms. The house and its building group, while each is individually architectural significant, are historically important to the settlement of the rural Benton County and Willamette Valley.

The Starr's property is where history, culture and architecture integrated and has been recognized officially by the 1983-present Cultural Resource Survey of Benton County. It is a prime cultural resource for the architectural theme of rural Benton County.

In the spring of 1985, Professor Philip Dole's Historic Preservation Technology class at the University of Oregon, used the house for a case of historic preservation study. The house is recognized for its historic significance- its contribution to an understanding of architectural style, method, construction, craftmenship, and aesthetic of rural architecture of the late 19th century. It is an example of a brick pier foundation and is also an example of a typical structural system of the period: box construction. It is a good example of a farmhouse which still associates with its farming activities and landscape. The property also helps enhance the historic environment of the neighborhood which contains a concentration of farmhouses and outbuildings dated pre-1900, such as the Edwards house and barn, and the Porter house.

The house has been vacant for about twenty years. It is presently used for household storage by the present owners, who reside in a trailer located west and next to the house. The house is in a deteriorated condition and can be lost in the near future if improvements aren't made.

Purposes and objectives

Mr. and Mrs. Brooks, the present owners of the Starr house, are interested in preserving the house, and possibly in using it as a permanent residence for their family.

The purposes of this project are to find the way to preserve the house and to be a case study for the author before graduate from the Historic Preservation Program, University of Oregon.

The house needs to be preserved because, through its contributions, it is significant as a historical heritage for the people of Benton County as well as Oregon. A preservation action needs to be done to protect its loss and to ensure its continuity through the future. The house could be preserved by an appropriate action to retain and enhance its significance, integrity and condition, and can be used as a dwelling in the 20th century. Through the process of rehabilitation, it is then considered as an appropriate action and as a feasible choice for the owners to preserve the house.

The definition of rehabilitation is defined in the Secretary of the Interior's Standards for Rehabilitation as follow:

> "Rehabilitation" is defined as the process of returning a property to a state of utility, through repair or alteration, which makes possible an effient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

Besides, this terminal project has three objectives:

1. As a case study, this project will give an opportunity to the author to be trained and guided by preservation experts- the professors in Historic Preservation Program at the University of Oregon.

2. This project will provide information for future study or research on the architecture or history of the house and its property, as well as for other related fields, such as for a cultural resource survey, and a settlement pattern study.

3. Information on the house, such as drawings and considerations and recommendations for rehabilitation, will help the owners to decide and start working on rehabilitating the house in the near future.

Even though this project contains much information, guidelines and recommendations for rehabilitating the house, for the actual work, the owners should hire an architect, an engineer and a contractor who have experience in doing complete preservation works. This project cannot stop the owners from doing any harm to the house, but hopefully it will help their understanding and will contribute to the effort of preserving this significant heritage for people in this and the next generations.

Owners' needs

The Brooks' family is composed of Mr. and Mrs. Brooks, a son, a new-born daughter, and an occupant. They reside in a nearby trailer, as mentioned earlier. Mr. and Mrs. Brooks farm the land under a name: the Crocker Farms. They spend a lot of time outdoors and the house will be a good place to comfort them after working all-day. They will bring up their children in the farmhouse. According to the family's needs, the house should provide modern conveniences: a bathroom on each floor, a laundry room, storage, a porch, utility systems- heating, electrical and plumbing, and insulation and weatherization. The Starr house has neverhad many of these systems and others presently are not working.

The car is important for Brooks' family, since they commute to their office in Monroe, take children to school in the morning and bring them back in the evening. A garage is therefore an additional requirement for the family. It will be considered in this project as well.

What is not discussed in this project is the interior decoration such as furniture and light fixtures, since this project is not a complete architectural work. It is the project that could be used by the Brooks as a guideline for planning rehabilitation of the house.

This project paper is catagorized into chapters. The introductory is in chapter I, and chapter II contains a historical study of the property. It will provide the background for readers about the people, activities and architecture of the property.

Chapter III is the analysis of the architectural appearance, conducted to understand significant elements of architecture that ought to be preserved and maintained. These will be discussed in detail in chapter IV. Their significance, characteristic and considerations on them will be discussed and some recommendations will be given.

Chapter V is about implications of future works and study. It will suggest what the owners should do next. Appendices will be at the end of the paper. They contain related information that may be used in the rehabilitation.

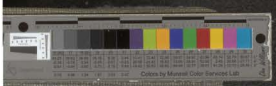
RESEARCH AND ANALYTICAL METHODOLOGY

In the rehabilitation project of the Starr house, research is necessary to provide facts and supporting information. Three types of research are conducted: historical, architectural and historic preservation.

The purpose of raising a historical research is to attempt to understand and reveal a history of the property. The historical facts about the people and the historical changes in the physical appearance of the property is searched.

Based on the historical research, the historic significance of the property can then be analyzed and identified. Historical research will contain information for other preservation actions, such as the cultural resource survey, the National Register for Historic Places nomination, and architectural and preservation research.

Historical research begins after the research topic is proposed. Data and evidences about the property are gathered from either primary or secondary sources. Information on history is collected from books, reports, official records, articles and interviews. Official records such as Deed and Tax records are important as primary data sources. Deed records reveal changes in land ownership, and are used to verify dates and people. Tax records refer to the property values of the land, which should be related to the people and the activities on the land. Books, reports, articles, interviews and other official records (such as marriage records and census records) provide further data or destriptive information on the history of the property.



Information from maps, photographs, drawings and field surveys are important. They contain visual evidence aid understanding, especially with regards to physical changes and patterns of land use over an extended period of time.

Limitation of data and available evidence is an occuring research problem. In some aspects, the research contents may be too broad. They may have a further study when more information and time are available.

Analytical methods of interpretation, verification, comparison, combination and conjecture will help to form a comprehensive conclusion. A written descriptive of the history is analyzes upon verified data and ecidence. Information from several sources will be checked against each other. Literature will be verified and compared by maps, photographs and field surveys. A written statement and comprehensive illustrations will be presented as a result of historical research.

The property will be analyzed to identify its significance. The house is considered as a thematic study of architecture, while the farm is as a synchronous study of landscape. The property should express its sense of historic place which normally emerges from historical legacy and physical appearance. Evidence of activities and collective consciousness should be recognized for identifying its significance and integrity. The quality of its significance and integrity will be described to help determining the National Evaluation for Historic Places.

The house and its landscape are also important as a cultural resource. To retain and enforce their integrity to the significant period, an architectural research seeks to reveal its appearance and the aspects of that era. Architectural aspects such as design concepts, aesthetic, value, craftmanship, construction and function will be analyzed. The architectural research methodology is similar to historical research, but more information is gathered through field surveys. Structures and landscape are recorded by measured drawings, sketches and photographs.

Associated with architectural research and investigation, a preservation research is an analytical study of existing building fabric to make considerations and recommendations for rehabilitation. The present condition of the property is examined and problems are identified. Each architectural element is then analyzed in detail by architectural and preservation techniques.

Generally, recommendations follow the Secretary of the Interior's guidelines for rehabilitating historic buildings. Many recommendations are based on owners' needs, the preservation experts' advise, and examples and research of similar architecture from the same period and region.

The considerations and recommendations for rehabilitation are presented in written statements and architectural drawings and illustrations.

CHAPTER II

HISTORICAL STUDY AND ANALYSIS

The first part of historical research describes the history of the ownership; it provides primary information about people who lived on and/or owned the land. The second part contains a detailed desciption and analysis about historical changes in people, activities and the land's physical appearance. The final part will described the historical significance and integrity of the property.

History of Ownership

The study area was apart of an original 640-acre parcel of donation land claimed by Thomas D. Reeves in 1845. A deed record ensured that T.D.Reeves and his wife were granted the 640 acres of land. Reeves had the right on the west half and his wife had the right on the east half of the land.

The deed record indicated that "The claim of Thomas D. Reeves and his wife Nancy Reeves of Benton County, Oregon Territory, Notification No 2540, has been established to a donation of one section, of six hundred and forty acres of land, and that the same has been surveyed and designated as claim No 40, and as parts of sections, five, six, seven, and eight in Township fourteen South of Range five West according to the Offices Plat of Survey returned to the General Land Office by the Surveyor General bounded and described as follows, to wit:

beginning at a point two chains and eighty six links north and eighteen chains and twenty six links west of southeast corner of Section six in Township fourteen South of Range five West, Thence east eighty chains; thence south secenteen minutes east eighty chains; thence north eighty nine degrees forty five minutes west eighty chains, and thence north seventeen minutes west, eighty chains took place of beginning; in the Willamette Land District Oregon Territory, containing six hundred and forty acres".[3]

After Reeves astablished his claim in 1845, he started to subdivide his land and sell it to interested people. Except a small part donated for a cemetary, his land has gradually all been sold. After his wife died in 1862, the right of 320 acres of subdivisions were granted to James Edwards, his north neighbor, during 1862-1868 (see table 1). The Edwards piece of land included 220 acres where the Reeves family had lived and farmed; even after this land was granted to Edwards the Reeves family still continued living on the eastern portion while Edwards lived on the western portion.

In approximately 1882 Edwin and Anna (one of Reeves' daughters) Starr, moved onto the farm and helped Reeves do farming. T.D.Reeves died in about 1887. The Starr family continued living on the farm. In 1889 Edwin Starr claimed 40 acres of land in lot 1 and 2 adjacent to Muddy Creek, but the ownership of the 220 acres of farm was still belonged to James Edwards. However, it was granted to Edwin and Anna Starr in 1901.

Edwin and Anna sold their 260 acres of land to Punderson Avery and John W. Foster on May 23, 1911. Foster used the land for access to a natural pond in the south of south boundary, where he went duck hunting regularly. At the same time, he and Avery rented their undivided land to the Larkin family, in approximately 1915.

The Larkin family stayed on the farm even though the ownership of Avery changed hands to J.C.Smith, M.H.Bawer and John Hyde in 1918. Foster bought up the land shares when Smith and Bawer sold out. John Hyde was the only man remaining with 1/6 of the undivided property. In 1948, E.E.Zysette bought that 1/6 undivided land while he was the tenant on the farm.

On February 5. 1976 Crocker Farms brought Zysett's 1/6 share of the property and the rest from the heirs of J.W. Foster:- Lucile Hout and Ida Foster.

Elizabeth Brooks (daughter of Samual Crocker) and her husband, two children and a occupant presently reside on the Reeves-Starr farm, which the total area is 261 acres(see figure 1,2).

Table I

Property Ownership Information[4]
(Deed Search)

ook	Page#	Grantor	Grantee	Date	Description
	209	Tom Reeves & Wife	William G.Porter	1/20/1859	100 a/Claim 40
	263	T. Reeves & Wife	James Edwards	11/13/1862	270 a/T14 R5
	135	T. Reeves	James Edwards	8/5/1868	50 a in E^2/Clm40
7	424	J.H. Edwards	Edwin & Anna Starr	12/22/1901	220 a/ Clm40
2	623	Edwin & Anna Starr	Punderson Avery & John Foster	5/23/1911	220 a/Clm40
6	58	Elizabeth Avery	J.C.Smith,M.H.Bawer & John Hyde	12/30/1918	½ interest 220 a/Clm40
3	441	M.H. Bawer & Edna	J.W. Foster	4/13/1932	undiv.1/6 interest/220a
6	416	J.C. Smith & Edna	J.W. Foster	10/13/1933	undiv.1/6 interest/220a
21	411	Jay, Alberta & Lloyd F. Hyde	E.E.Zysett etal	3/2/1948	undiv.1/6 interest/220a
-62	921	E.E.Zysett,Ada Foster& Lucile Hout	Crocker Farms	2/2/1976	land inT14 R5

Source: Benton County Courthouse, Corvallis , OR

Table 2

Assessor Information[5]

Year	Name	Property Value	Comments
1880	T.D. Reeves	$1210	220 acres
1885	T.D. Reeves	$2750	220 acres
1886	T.D.Reeves	$2500	220 acres
1887	Heirs of Reeves	$2200	220 acres
1888	Heirs of Reeves	$2200	220 acres
1889	E.N. Starr	$3192	260 acres
1890	no listing		(claim 40+lots 1 & 2 west of Muddy Creek)
1891	E.N. Starr	$3192	260 acres
1892	E.N. Starr	$3542	260 acres
1893	E.N. Starr	$3174	260 acres
1894	E.N. Starr	$3215	120 acres cultivated 140 acres unimproved
1895	E.N. Starr	$2750	120 acres cultivated 140 acres unimproved
1896	E.N. Starr	$2825	120 acres cultivated 140 acres unimproved
1897	E.N. Starr	$2600	120 acres cultivated 140 acres unimproved
1888	E.N. Starr	$2640	120 acres cultivated 140 acres unimproved
1889	E.N. Starr	$3340	85 acres cultivated 515 acres unimproved
1900	E.N. Starr	$2820	120 acres cultivated 140 acres unimproved
1901	E.N. Starr	$2820	120 acres cultivated 140 acres unimproved

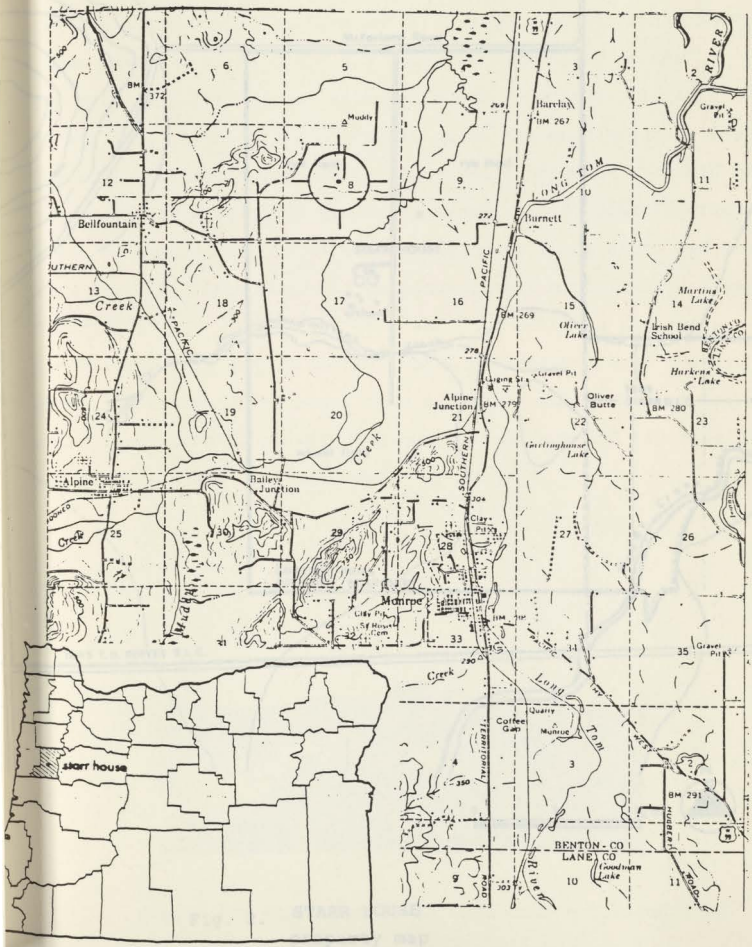
Source : Benton County Assessor's Office, Corvallis, OR

Starr House
Monroe, Oregon

UTM Reference Point:
10 474520 4912700

Monroe, Ore.-Quadrangle
Scale 1 : 24,000

Fig. 1. Location of the Starr house



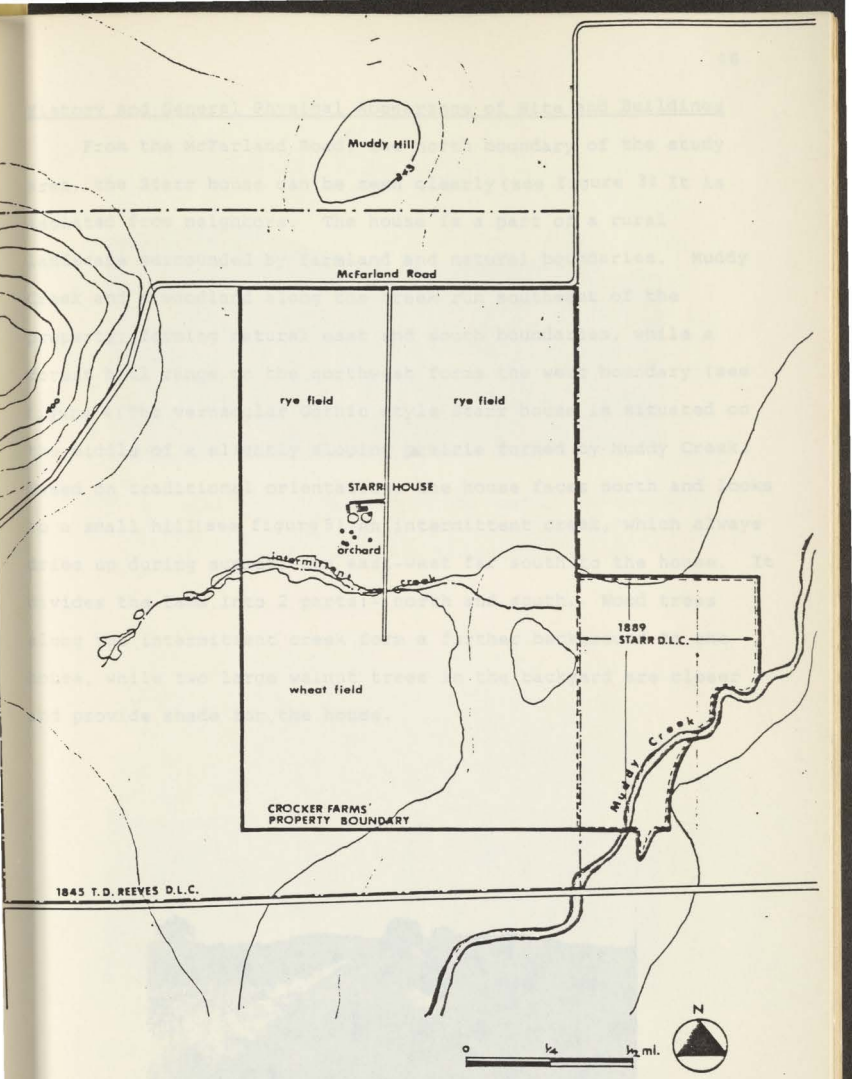


Fig. 2. STARR HOUSE
property map

History and General Physical Appearance of Site and Buildings

From the McFarland Road; the north boundary of the study area, the Starr house can be seen clearly(see figure 3) It is isolated from neighbors. The house is a part of a rural landscape surrounded by farmland and natural boundaries. Muddy Creek and a woodland along the creek run southeast of the property, forming natural east and south boundaries, while a forest hill range on the northwest forms the west boundary (see figure 4) The vernacular Gothic style Starr house is situated on the middle of a slightly sloping prairie formed by Muddy Creek. Based on traditional orientation, the house faces north and looks to a small hill(see figure 5) An intermittent creek, which always dries up during summer, run east-west far south to the house. It divides the land into 2 parts:- north and south. Wood trees along the intermittent creek form a further background to the house, while two large walnut trees in the backyard are closer and provide shade for the house.

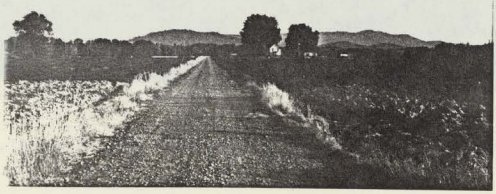


Fig.3 The Starr house was seen from McFarland Road.

Fig. 4. A hill range locates in the west of the property.

Fig. 5. A small hill locates in the north of the property.

The entry to the house is a gravel driveway running north-south from McFarland road. The driveway passes east of the house across the intermittent creek to the south field. A separate driveway branches off of the main driveway and passes the front of the house, ending at a trailer; this trailer is a temporary residence of the present owners.

Farm fields surrounding the house are crop cultivated. North field is planted in Gulf rye grass, and the south field is planted in wheat. What remains of an orchard behind the house are four apple trees and two pear trees (see figure 6). A small outbuilding is located in the southeast, close to the house (see figure 7).

Fig. 6. The orchard of the Starr house

Fig. 7. The dairy outbuilding is in the southeast close to the house.

The historic research on the house and its land reveals the earliest physical description of the land. The land was a part of Thomas D. Reeves' farm which was said to be the first donation land claim in Benton County. His land claim was recorded during the first official survey of the Willamette Valley in 1853. A general plat map from the survey indicates the first occupant as T.D. Reeves. It also described his farmland and other landscape elements (see figure 8).

Reeves established his home at the hill foot on his claim northeast of the study area. His earliest field was paralleled to the Muddy creek and northwest hill range. A part of his field was located in the study area (see figure 9).

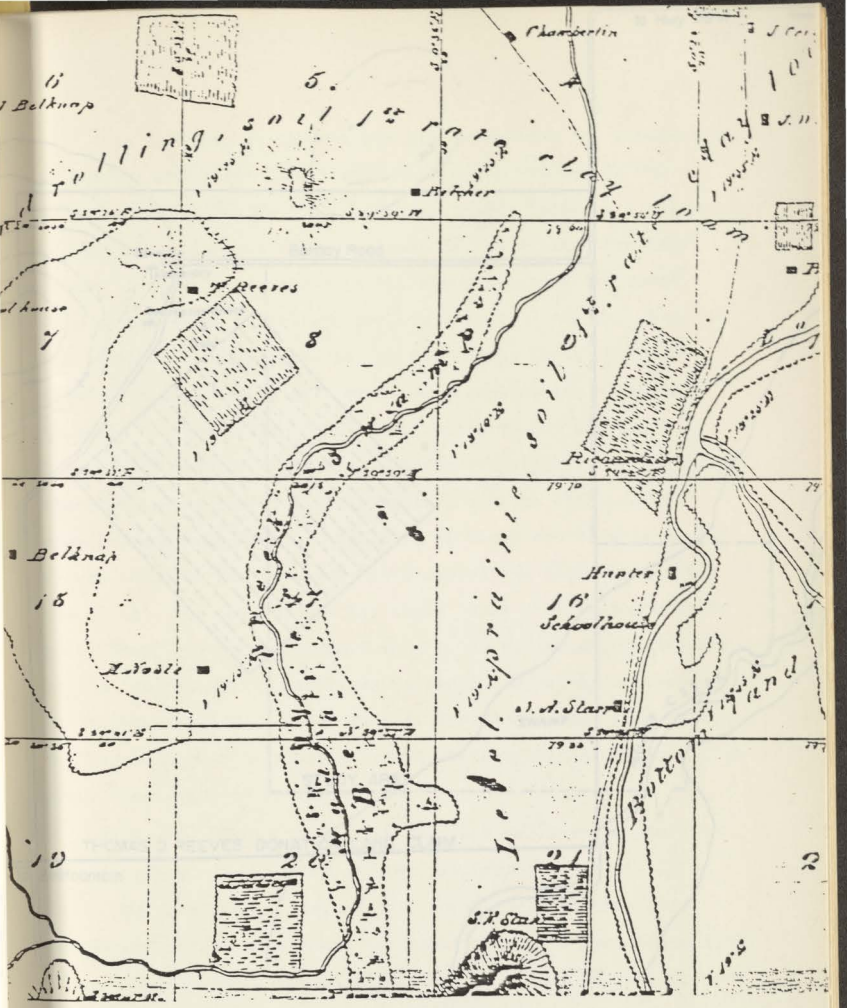


Fig. 8. 1853 plat map of Willamette Valley depicting T.D.Reeves donation land claim.

Source : General Plat Maps of Willamette Valley Map library, U of Oregon.

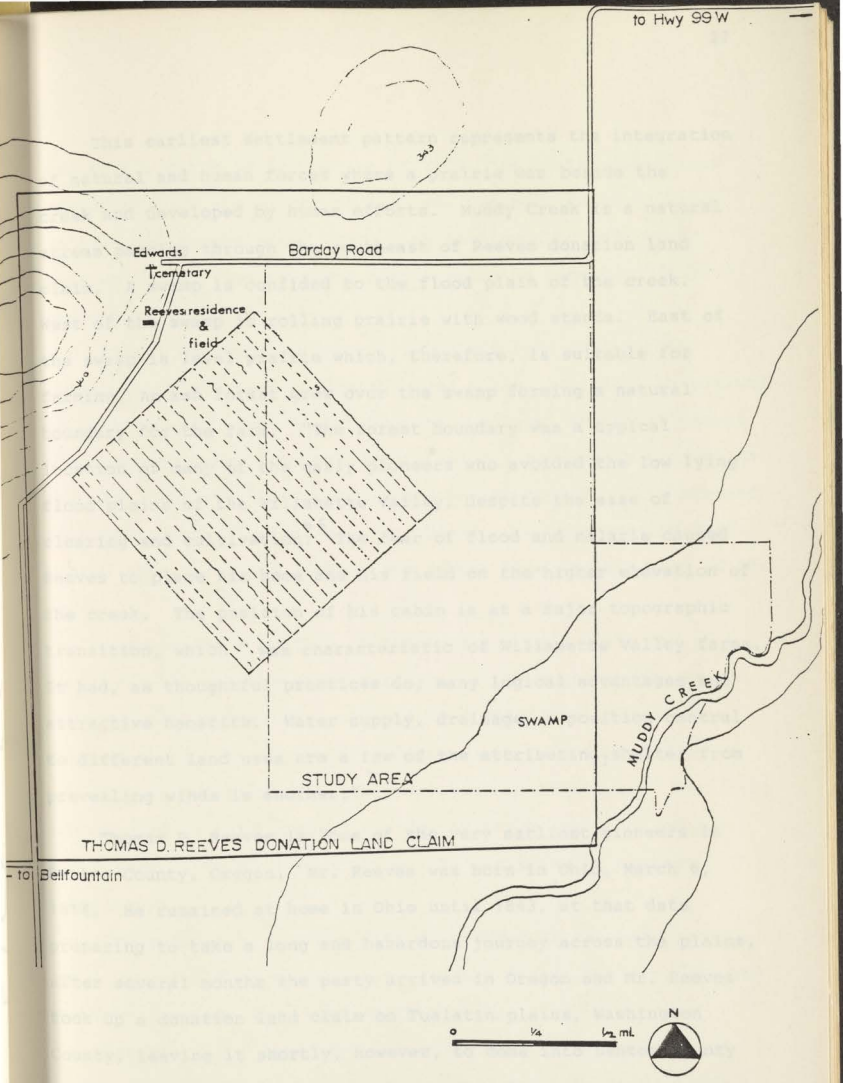


Fig. 9. 1853 comprehensive map of the Reeves-Starr farm (based on General Plat Maps of Willamette Valley & USGS Quadrangle maps)

This earliest settlement pattern represents the integration of natural and human forces where a prairie was beside the creek and developed by human efforts. Muddy Creek is a natural stream passing through the southeast of Reeves donation land claim. A swamp is confided to the flood plain of the creek. West of the swamp is rolling prairie with wood stands. East of the swamp is level prairie which, therefore, is suitable for farming. An ash forest grew over the swamp forming a natural boundary for the farm. "The forest boundary was a typical location of many of the early pioneers who avoided the low lying flood plains of the Willamette Valley, despite the ease of clearing and cultivation."[6] The fear of flood and malaria caused Reeves to place his home and his field on the higher elevation of the creek. The position of his cabin is at a major topographic transition, which " was characteristic of Willamette Valley farms. It had, as thoughtful practices do, many logical advantages and attractive benefits. Water supply, drainage, a position central to different land uses are a few of the attributing;shelter from prevealing winds is another."[7]

Thomas D. Reeves is "one of the very earliest pioneers in Benton County, Oregon. Mr. Reeves was born in Ohio, March 6, 1814. He remained at home in Ohio until 1843, at that date preparing to take a long and hazardous journey across the plains, after several months the party arrived in Oregon and Mr. Reeves took up a donation land claim on Tualatin plains, Washington County, leaving it shortly, however, to come into Benton County

and took a claim in the spring of 1845."[8] He built a cabin and stayed through the winter of 1845-46. He married Nancy Llyod in 1848 and on the study area, they continued to make their home up to the time of their deaths with the exception of four or five years.

Reeves had to stay and cultivate his land in order to obtain the right to his donation land claim. In 1846, he planted an orchard with trees that Handersom Luelling, the first person who started a nursery in Willamette Valley, supposedly brought to the west. It was the first orchard in the county. This orchard thrived and bore fruit for a long time. One tree was the Reeves cherry tree, lomg the largest and oldest tree in this part of the state.

Reeves gave a portion of his donation land claim for a cemetary. It was the first cemetary in the county known as the Edwards(Reeves) cemetary. It has long ceased to be used as a burying place but many early pioneers were buried there.[9]

Reeves contributed to the education in this area. The first schoolhouse in this part of the county was a log schoolhouse built about 1850 on Reeves'place. It was known as Reeves Schoolhouse.

Log buildings, a cabin with an orchard in the back yard, a small crop field an the prairie, and the forest boundary was the earliest man-made landscape of this area.

Another early landscape component was the transportation route. A road formed by topographic and early donation land

claim boundaries was the only road connecting the Reeves farm to Bellfountain and to Highway 99W in the later period. It was named Barclay road after a land owner living near the intersection of the road and Highway 99W. Presently, it is named McFarland road. During about 1930s the road lost its significance when the new Burnett road was cut to the south to shorten the way from Bellfountain to Highway 99W.

Reeves started to subdivide his land for selling to interested people, starting from the west side (parts of section six and seven). Then he moved his farm onto the study area (section eight) probably during late 1850s to early 1860s (see figure 8).

Reeves continued general farming and stock-raising on his farm, and though he was interested in his work he always found time to take an active part in the affairs of the community.

"He was always interested in politics, being a stanch Democrat, and was also very philanthropical, giving freely of means which became his through the years of effort, giving to churches and schools and to anyone in need who called upon him for assistance. He was justly popular man,an enviable place in the esteem of the people of this county being his, his death was a loss felt by many."[10] Reeves was a generous man. He helped newcomers to settled on their land. The Reeves family was respected for keeping up with the sick child and tooking in the unfortunate man and furnished them with a horse to get back to Oregon city.

Reeves' farm was developed more when his daughter and son-in-law Anna and Edwin Starr moved onto the farm. This evidence shown by the property value increased dramatically such in 1885 (see table 2), during which a large barn was probably built. It added to the simple landscape of the early period and started a a developing period of the farm. Reeves died about 1887 at age 73. The farm was continued by the Starr family.

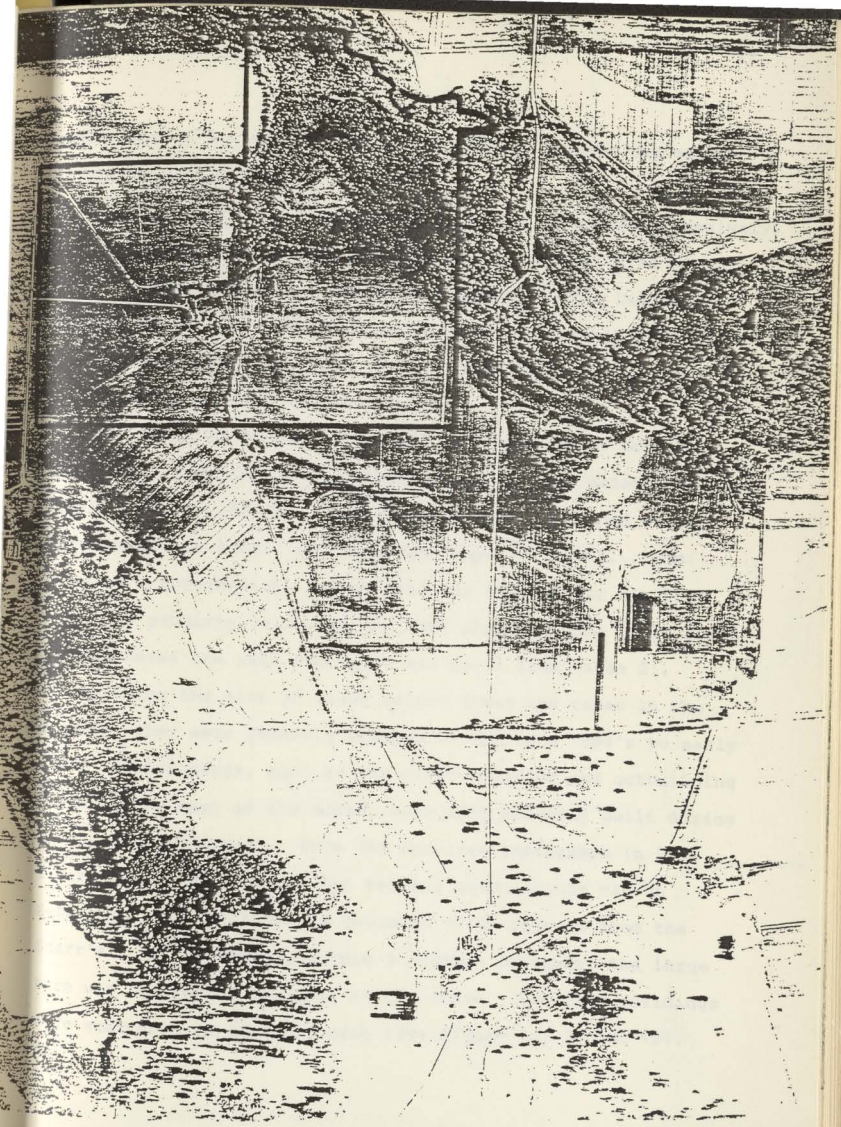
In the Portrait and Biographical Record of Willamette Valley Oregon, 1903, it is noted that " As a successful farmer Edwin N. Starr is giving his energies and talents toward a cultivation of the broad lands of the state of Oregon, now occupying a part of the old Reeves donation claim, a link between the days of pioneer hardships and the present affluence."[11]

His father, George M. Starr was also an important pioneer in Benton County. He settled in Monroe about 1854 and engaged in the general merchandise business in partnership with a man named Belknap, the firm name being Starr & Belknap. This was the first establishment of the kind in the town and it was continued for several years, when George M. Starr removed to Idaho after about six years' residence in Monroe. However, he came back to Monroe and stayed until his death.

George M. Starr married Elizabeth Demmick in 1845, having a son named Edwin N. on July 1, 1856. It is continued in 1903 Portrait and Biographical Record of Willamette Valley Oregon that " Edwin Starr was born in Monroe, Oregon and was there reared to young manhood. He attended the district schools and remained at home until he was eighteen years old, when he started out to make

his own way in the world. He followed his early training and worked as a farm hand for some time, his first venture on his own responsibility being on a claim which he had taken up in Lincoln county. He remained there for eight years, at the close of that period coming to the place which he now occupies, previously mentioned as a part of the Reeves donation claim. Through energy and perseverance Mr. Starr has made many improvement, in fact, all of those which now make the farm most valuable. He has excellent buildings of all kinds, good commodious barns and outbuildings, and a comfortable dwelling. Out of two hundred and sixty acres he is now cultivating one hundred and thirty, following the methods of his father in carrying on general farming and stock-raising, making a specialty of Shorthorn cattle.

" The marriage of Mr. Starr occurred March 23, 1879, and united him with Anna Reeves, who was born on the place where she now makes her home, the daughter of a pioneer, Thomas D. Reeves. Mr. and Mrs. Starr have three children, named in order of birth as follows: Claude I., Grace E. and Tracy, all of whom are still at home with their parents. Politically Mr. Starr is a Democrat and has served in the interest of this party in the capacity of road supervisor. Fraternally he is a member of the Woodman of the World. With a good record of energetic, persevering labor for his past years, Mr. Starr has made for himself a place in the community, bearing his part in all efforts to improve the



N ◀

Fig. 10. 1936 aerial photograph indicating the Starr farm

conditions of his native state, and winning thereby the esteem of his fellow-citizens."[12]

During Starr's occupancy, the farm was developed extensively. Many buildings were believed adding to the central area of the farm. A house became a significant element of the landscape in approximately 1889. Other buildings should be built because of activities of the farm, such as barns for stock-raising, a chicken coop, a diary building, etc.

The house is a one and a half story vernacular Gothic farmhouse. From the architectural style, it was dated from late 1880's to early 1890's. From a patient date engraved on a hardware of the house, it indicated "Sept 27, 1887". From Assessor's information, Reeves paid tax in 1986 for his last year. The property value has not been changed until 1889, which is considered the year the house was built (see table 2).

Looking the size of black walnut trees and trees in the orchard, they were probably planted in the late 1880's to early 1900. Outbuildings, such as the diary building and outbuilding close to the east of the house, were also probably built during the Starr's occupancy. From the earliest photograph in 1936, a large barn, small barns and several outbuildings can be detected. Many of them are believed to be remains from the Starr's. At a distance, across a present driveway, the large barn was located to the east of the house. Numerous buildings were scattered on the core area (see figure 10, 11 and 12).

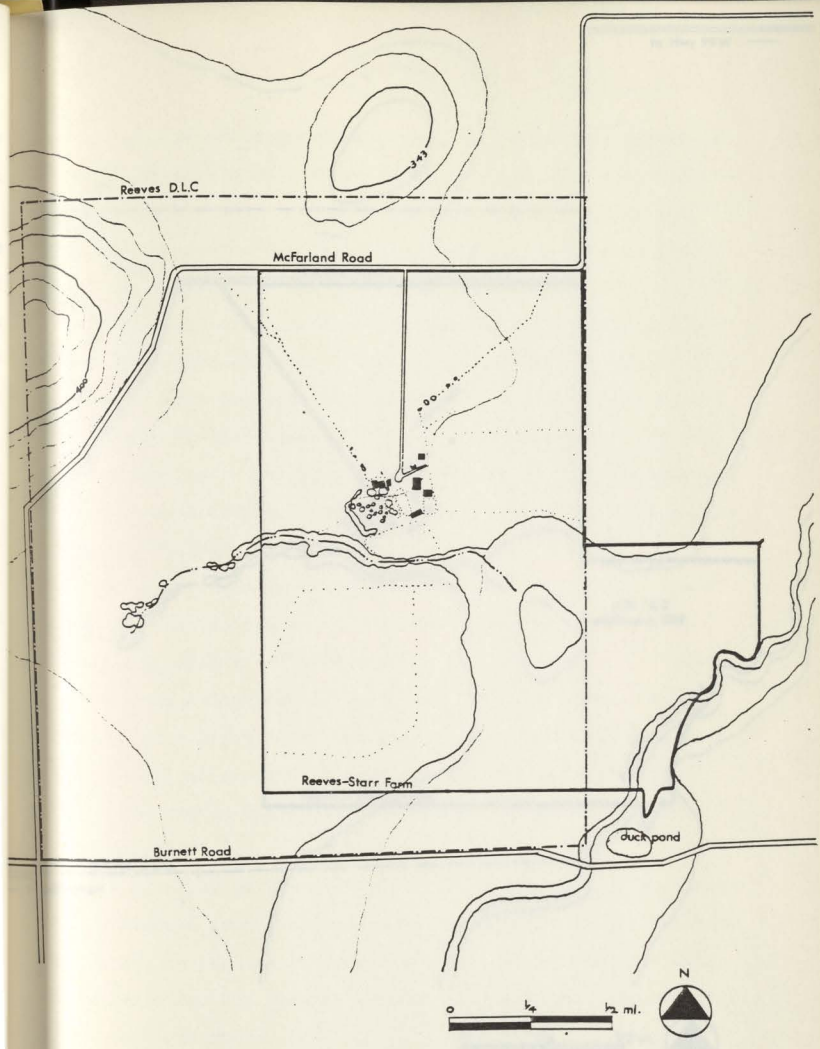


Fig. 11. 1936 comprehensive map of the Starr farm (based on 1936 aerial photograph)

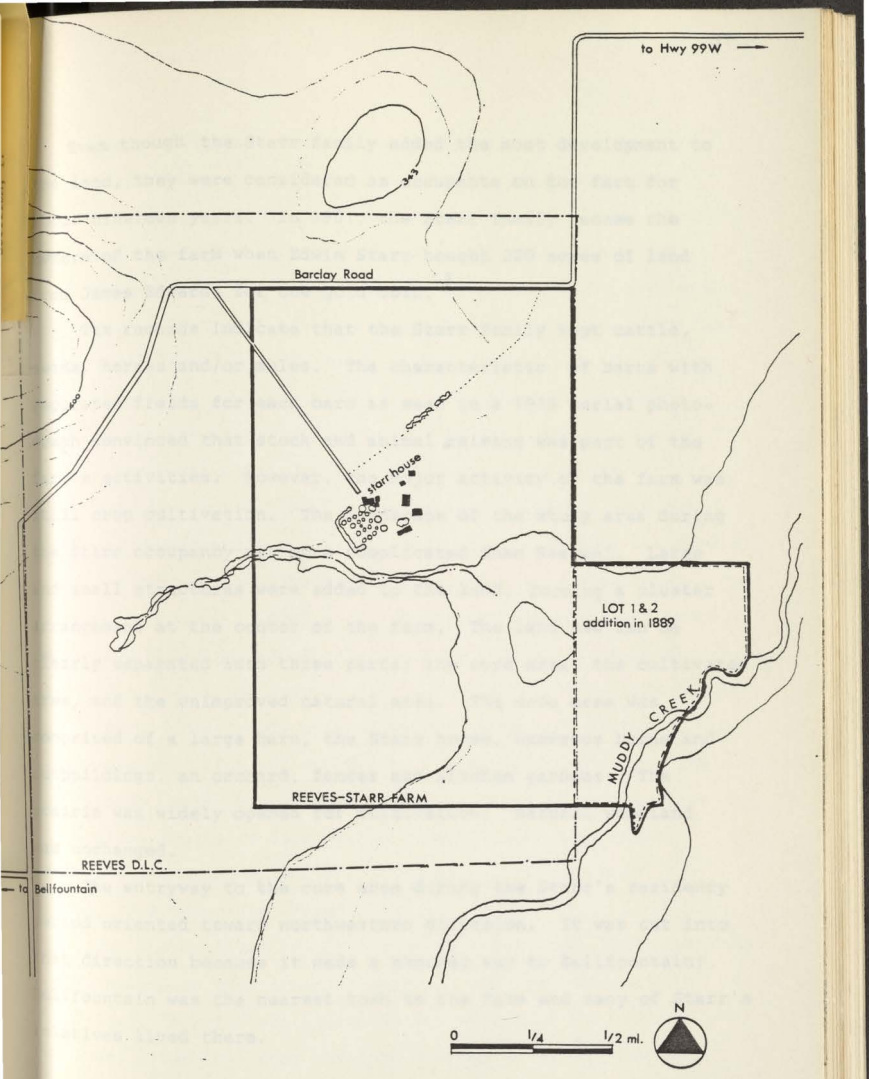


Fig. 12. Conjectual map of the Starr farm during 1889-1910

Even though the Starr family added the most development to the land, they were considered as occupants on the farm for about nineteen years. In 1901, the Starr family became the owners of the farm when Edwin Starr bought 220 acres of land from James Edwards for one gold coin.[13]

Tax records indicate that the Starr family kept cattle, swine, horses and/or mules. The characteristic of barns with separated fields for each barn as seen in a 1936 aerial photograph convinced that stock and animal raising was part of the farm's activities. However, the major activity of the farm was still crop cultivation. The landscape of the study area during the Starr occupancy was more complicated than Reeves'. Large and small structures were added to the land, forming a cluster arrangement at the center of the farm, The land use can be clearly separated into three parts: the core area, the cultivated area, and the unimproved natural area. The core area was comprised of a large barn, the Starr house, numerous barns and outbuildings, an orchard, fences and kitchen gardens. The prairie was widely opened for cultivation. Natural woodland was unchanged.

The entryway to the core area during the Starr's residency period oriented toward northwestern direction. It was cut into that direction because it made a shorter way to Bellfountain; Bellfountain was the nearest town to the farm and many of Starr's relatives lived there.

The evidence shows the northwest entryway is "infrared photographs of the farm, taken on July 26, 1973, they were viewed to discover cultural features that are no longer visible to naked eyes. The flying height of these photographs was 30,000 feet above the ground level. By enlarging the photograph 31 times; it was possible to discern barns (that have since been torn down), and from crop marks in the north field, two former roads could be seen, one of these former roads on the farm follows a northwestern direction."[14] The other one may be the only walkway which follows the northeastern direction.

THe main evidence which convincingly shows the original entryway toward northwestern diredtion is a 1922 USGS quadrangle map (see figure 13). The road was shown as a double-dotted line: a symbol for gravel local raod. Northwest and northeast entry-ways also played an important role to divide the land into divisions during the early time. Looking at 1936 to 1978 aerial photographs, crop marks indicating northwest and northeast entryways are still noticable (see figure 10 and 14-18). The decreasing needs to subdivide the farm into small pieces made crop marks gradually disappeared, that was when the farming method was changed from diversified crop cultivation to specialized crop cultivation .

The Starrs lived in the farm until 1911, when Edwin and Anna sold their farm to a group of people. The land was still undivided. No evidence indicates why they sold the land. However, after they sold the land they moved to Bellfountain,

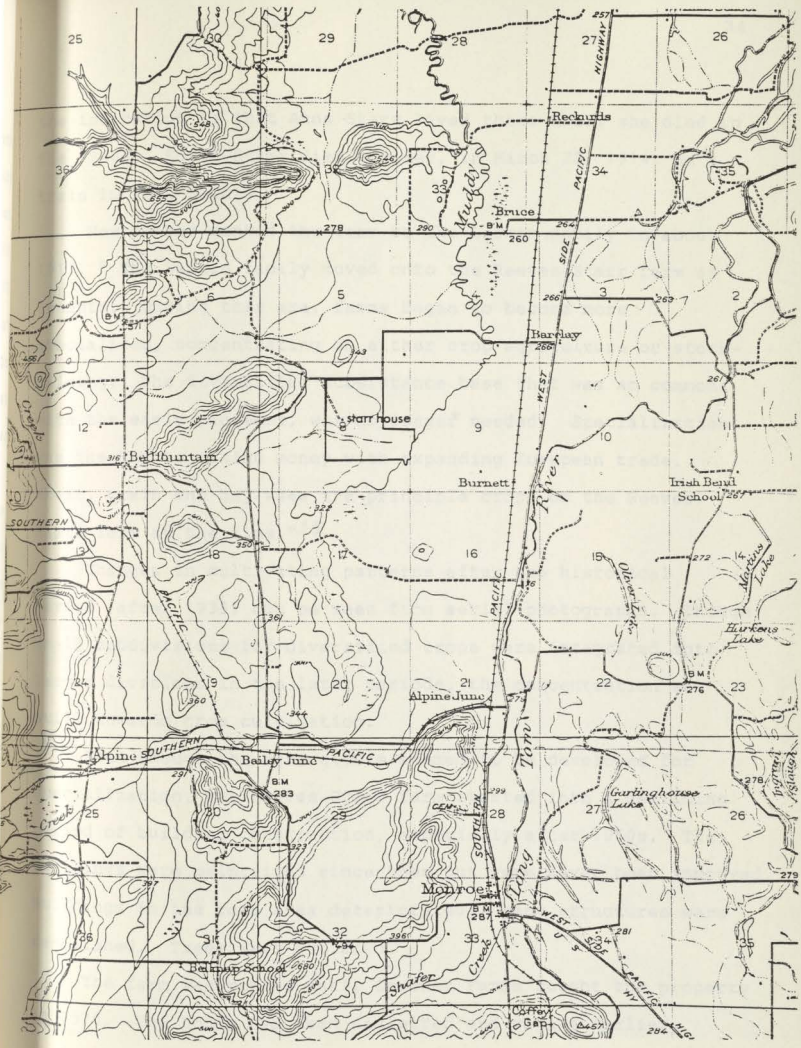


Fig. 13. 1922 USGS Quadrangle map indicating the NW entryway

the indication is that Anna Starr lived there until she died in the 1940s. Edwin Starr died earlier, in March 28, 1914, on a train in Polk county.

New owners rented the farm to the Larkin family in about 1915. " The Larkin family moved onto the Reeves-Starr farm as tenants. During this era, farms began to become more specialized, concentrating on either crop agriculture or stock-raising. The diversified subsistance base that was so common with the early pioneers, was no longer needed. Specialization was the key to making money with expanding European trade. Wheat, grain and hay weee the principle crops on the Reeves-Starr farm at the time."[15]

Changes in cultivating patterns after the historical period (after 1935) can be seen from aerial photographs. Though small subdivisions for diversified crops were integrated into larger divisions in the later periods, the concentration was still towards crop cultivation.

Even though the agriculture seemed to be developed for specialization, the Reeves-Starr farm started into a declining period of building construction, especially after 1950s. The buildings were maintained since then but were never been improved. Buildings in the core area deteriorated. Many structures were demolished. Trees were cut down.

The farm was rented until Crocker Farms bought the property in 1976. The house had been neglected and vacant earlier, perhaps since 1960s.

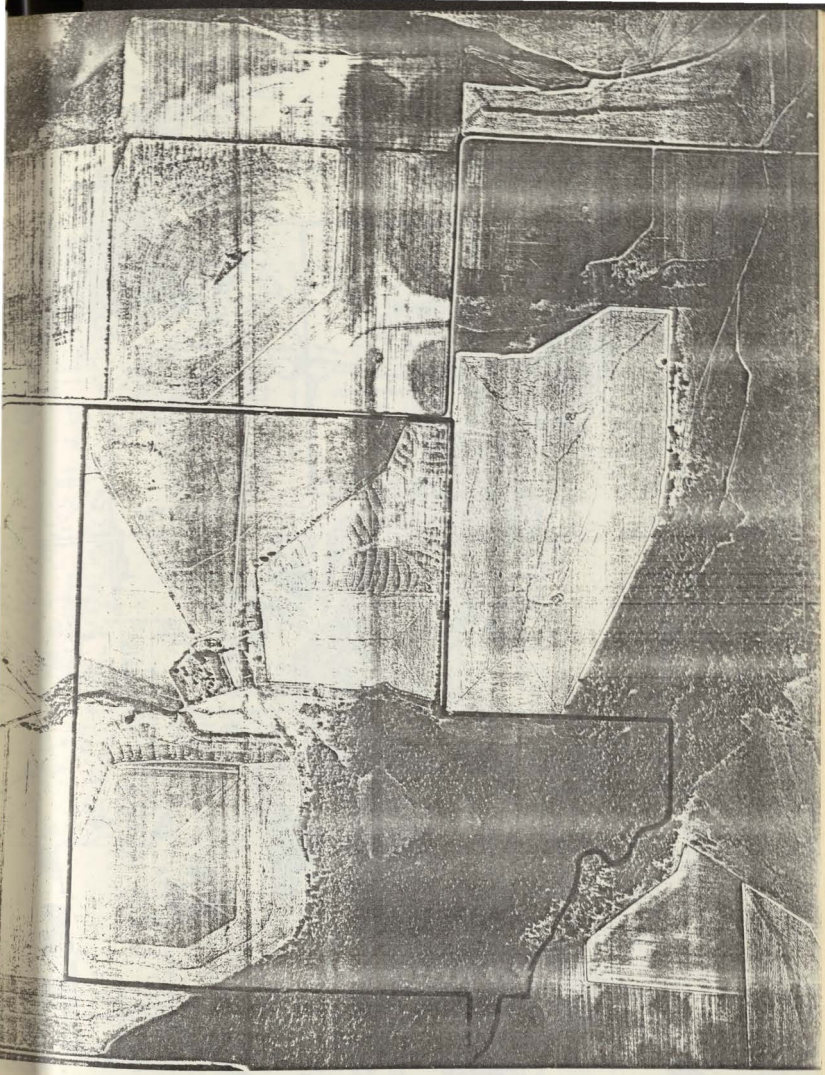


Fig. 14. 1944 aerial photograph

N
▲

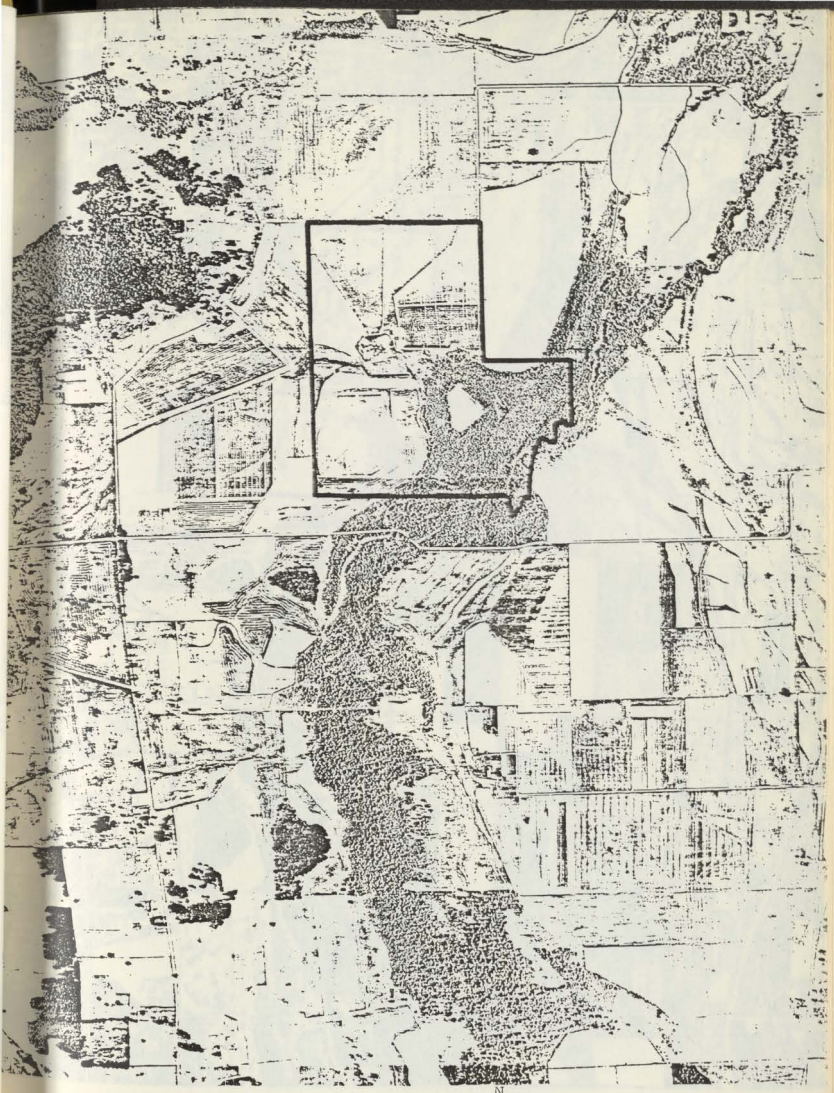


Fig. 15. 1948 aerial photograph

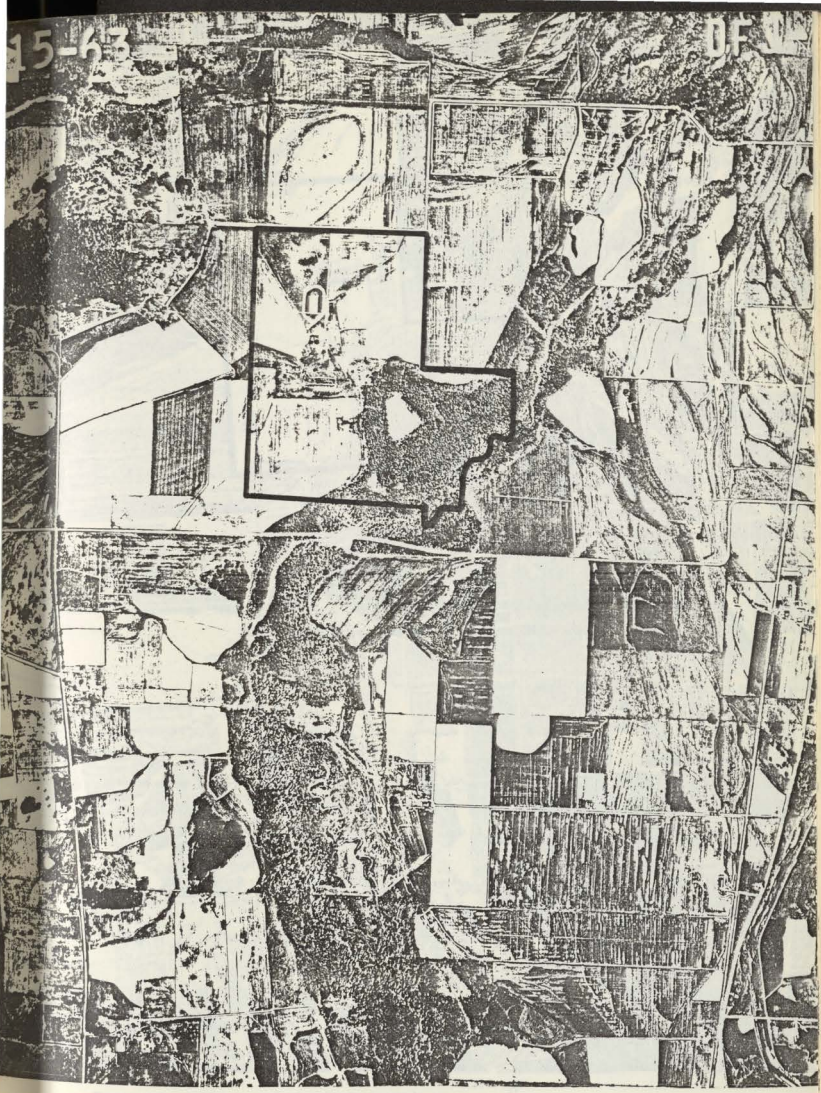


Fig. 16. 1963 aerial photograph

N
▲

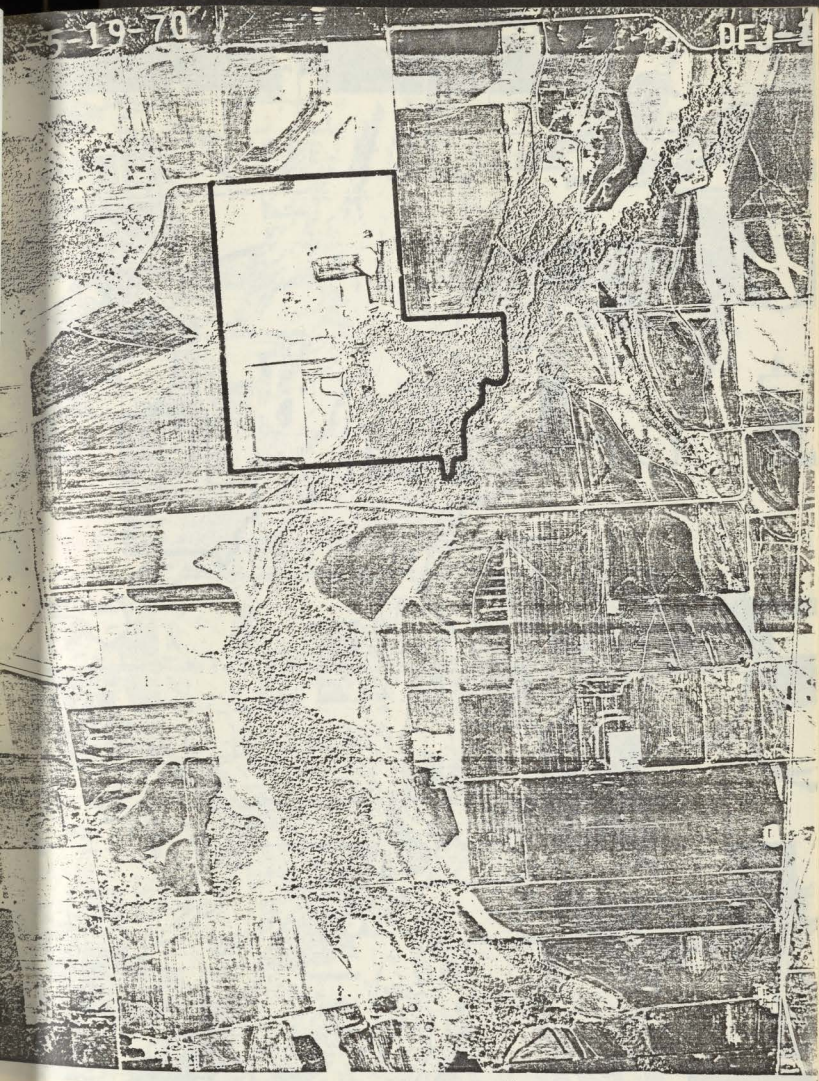


Fig. 17. 1970 aerial photograph

N
▲

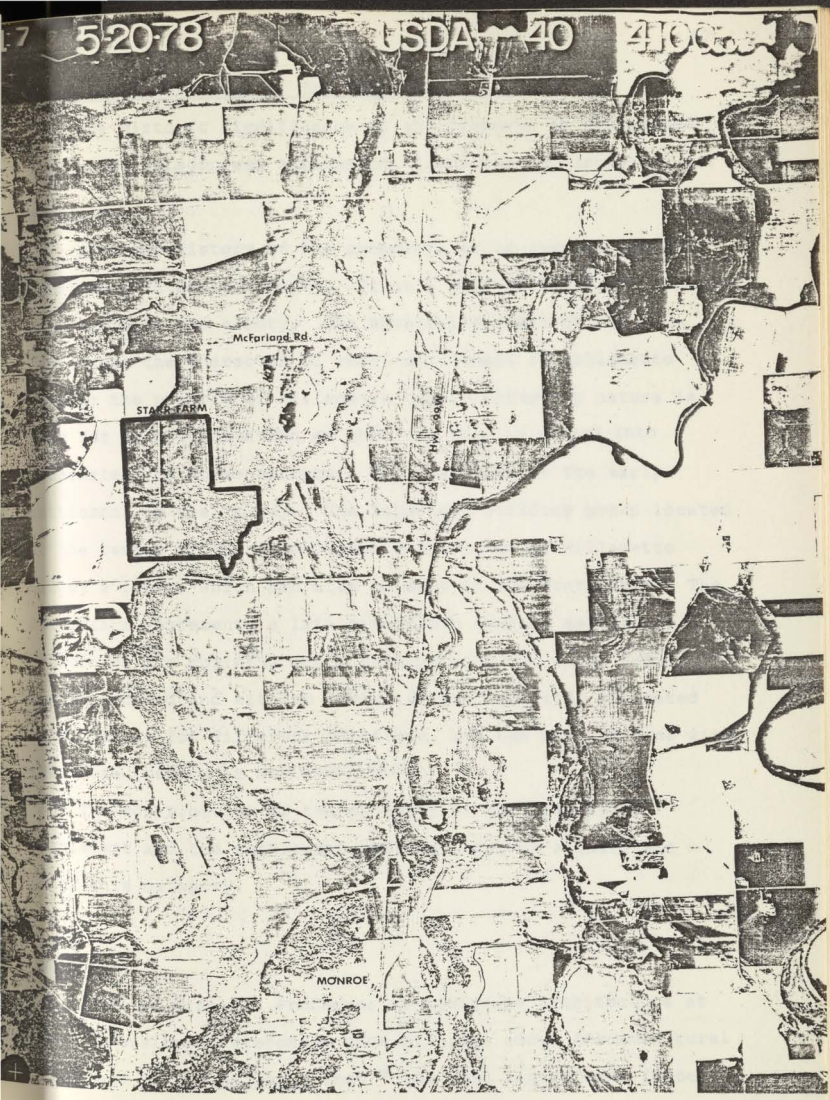


Fig. 18. 1978 aerial photograph N ▲

Historic Significance of The Starr House and Its Land

The historic significance of the property is considered into three catagories: settlement, landscape and architecture.

Settlement

From the history of the property, it is seen as an early settlement in Benton County. It is a part of the first donation land claim in the county. The physical pattern of its farm represents the character of rural settlement of Willamette Valley; the prairie of Willamette Valley formed by nature is good for crop cultivation so that the farm is shaped into a farmstead by human efforts. This happened as the early settlement in the Valley. The farmstead building group located at the center of the farm became a character of Willamette Valley's farms, which can also be seen at the Starr farm. The Starr farm represents a late nineteenth century settlement pattern by its building group arrangement- the house facing north, orchard and kitchen garden in the backyard, separated outbuildings for different functions, and the barn in line with the house (before it was demolished).

The contribution of the property to the history of settlement and the settlement pattern makes it significant under this catagory.

Landscape

William Tishler, Professor of Landscape Architecture at the University of Wisconsin gave his idea about American rural landscape in APT Bulletin that " the most significant force

that shaped the rural countryside evolved from the vast agricultural base that once dominated the American economy. The common denominator of this activity was the farm, and the nucleus of each farm was a group of structures representing the farmstead. These agrarian structures constitute probably the most diverse elements of the built environment. As such, their arrangement deserves serious attention in historic preservation efforts."[16]

The Starr house and dairy building are individually significant, but the landscape architecture of the farm is also significant for representation of a character of rural landscape from the historical period to the present. The house and outbuildings are elements of landscape architecture of the farm, as are the cultivated fields, driveway, trees, garden, orchard, creek and natural woodland. These elements have to accord together to form a significant landscape. The lack of a house will destroy the landscape significance, just as the lack of a landscape will destroy the significance of the house.

Industrialization and city expansion change the form of the farm pattern dramatically. Many historic farmhouses are no longer sitting on the farm. Many farms are changing to specified agriculture, so that some farm's structures and land use functions are no longer necessary, and so have been demolished.

For the Starr farm,the cultivated fields and woodland generally have maintained their original area since the historic period, but a subdivided field pattern for diversified crops

has been integrated into a large field pattern due to the specified crop agriculture. The major function of the land use is still crop cultivation. Farm fields surround the core area of the farmstead and they are still visually bounded by natural boundaries. They create symbolic and aesthetic values to the landscape of a rural area, and the farm building group at the core area becomes a landmark of the locality.

Architecture

The most significant element of the property is the house known as the Starr house. The house was built in approximately 1889. It is significant because of its contribution to history, settlement pattern, landscape architecture and to the architecture of the late nineteenth century.

The house is a vernacular Gothic style farmhouse which was once a popular style in the Willamette Valley. The most significance fact of the house is its integrity. Even though the house is presently in poor condition, the structure is intact. Alterations to the house have been minimal. The enclosure of the back porch and the addition of a bathroom can be easily removed to reveal the original appearance. The house is considered significant because it is a typical example, and is relatively a rare example of this type domestic architecture surviving from the late nineteenth century. It is also significant because of its association with the landscape. The

house was intended for use as a farmhouse, it is therefore very necessary to keep it on its original location and reenforce farming environment.

The house has been situated on the original location and foundation for almost a century. Its foundation is presently a rare foundation type. Comparatively few historic houses in Oregon remain with this kind of foundation.

The house is an example of the vernacular Gothic style because it significantly represents the concept design and character of its type. The T-shape plan, the striking 45 degree gable roof, the structural elements and the decorative elements all contribute to architectural understanding, values and aesthetic of the historical period.

The box structure of the house is an example of the construction method which has not been used since the turn of the century. Craftmanship on house elements such as the bay window and its brackets, corner boards and capitals on top, frieze boards, siding, fireplaces and chimneys, window and door trim, windows and doors, stair and stair balustrade, and porches are notable. As a whole, the house creates the aesthetic and symbolic values of the vernacular Gothic architecture.

Furniture and light fixtures have been removed from the house, but the original hardware and wallpaper reveal the interior taste of the house. Hardware is ornate, as is the wallpaper. They represent the Victorian interior architecture which was favorable during that period.

The dairy building is significant as a utilitarian building

for a farming activity as a landscape element. The Queen Anne style of the building is notable of architecture of its type. The balloon frame construction of the building represents the favorable construction method of the twentieth century. The craftmanship, on detail such as window, eaves and cupola, makes it significant for architecture of its type .

CHAPTER III
ARCHITECTURAL ANALYSIS OF ORIGINAL FUNCTION AND EXPRESSION

General

From Architecture Oregon Style: " The Gothic revival style came to America from England and was inspired by the romantic and picturesque movement of the late eighteenth or early nineteenth centuries. Artists, writers, poets, and architects under the influence of this movement asserted the need for imagination and feeling; they disdained restrictive formality and emphasized individualism in thought and expression.

Oregon's Gothic revival buildings appeared in conjunction with the availibility of pattern books by Andrew Jackson Downing (1815-1852). Downing is a theorist, a critic, and a strong advocate of the Gothic style. He was so persuasive and articulate that he convinced architects and builders that Gothic revival style was interesting, domestic and appropriate for American landscape." [17]

The Gothic revival style was introduced to Oregon by the 1850s. Early versions of the Gothic revival style in Oregon tend to look like the ideal Downing set forth: a picturesque silhouette, vertical board-and-batten siding, and includes one-over-one of four-over-four, double hung sash window. The second version known as the Carpenter Gothic came to be applied to the buildings featuring the lacy woodwork.

The third version of the style, a vernacular Gothic sometimes known as Western Farmhouse. " The term "Western Farmhouse" designates that extensive group of rather plain rural homes throughout the 1870-1900 period in the Willamette Valley which do not comfortably fit within any national stylistic architectural vogue. The buildings achieve individuality and exhibit some unique detail. As a group they express, as they reasonably should, interest in utility at reasonable cost - a comfortable home." [18]

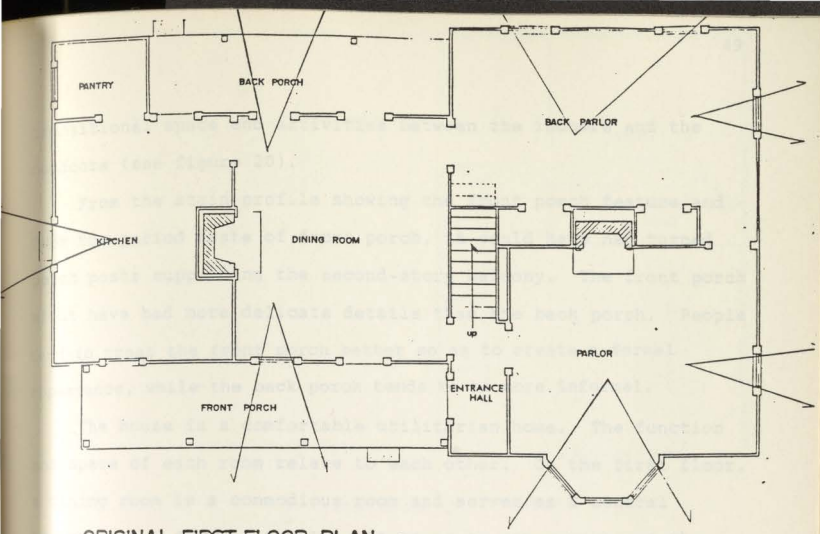
"Its chief characteristics are the steeply pitched gable roof, and the placement of two or more rectangular volumes at right angles to form a T or L composition, which gives the expression of separate wings. Builders employed the formula for the Western Farmhouse until the turn of the century, sometimes in conjunction with minor features of the other national styles, such as Classical Revival pilaster corner boards, Italian bay windows, Eastlake porches, and Queen-Anne fish-scale shingles. These builders were primarily concerned with utility, economy, and comfort, and thus used simple construction techniques and ornamentation." [19]

Plan, Volume, Structure, and Elevation

According to architectural style designation for historic houses, the Starr house is considered a Western Farmhouse version of vernacular Gothic style. It employs strong characteristics of the type. The house is T shape in plan formed by two wings perpendicular to each other.

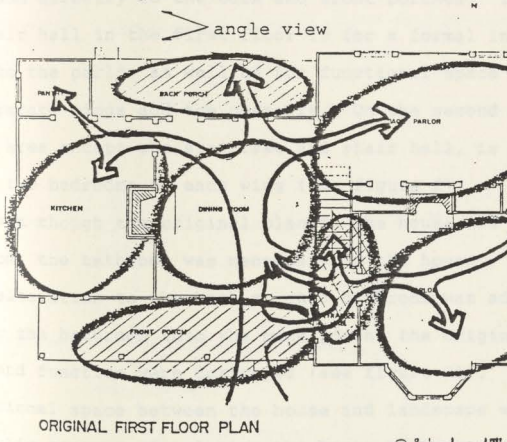
The front wing running north-south contains the entrance and stair hall, open staircase, the parlor room, and the back parlor room on the first floor; stair case, stair hall and two bedrooms on the second floor. The other wing running east-west contains a dining/living room and a kitchen on the first floor and two bedrooms on the second floor. A pantry and an open porch were adjoined to the back of the east-west wing. A part of the original open back porch was filled in and altered to be a bathroom an about the 1940s. Along the front of the east-west wing, a projecting porch supporting a second-story balcony was original. At the present this porch is missing.

From the Gothic concept, the Gothic house is appropriate for the American landscape because the house reveals itself to a surrounding landscape of farmland. The separate wings then provide picturesque quality (see figure 19) relative to room volumes formed by a tall ceiling, a bay window and windows open to the surrounding landscape. The back porch and front porch are important architectural features connecting the space from the landscape outside to the rooms inside. Porches serve not only this function, but also serve to provide the creation of



ORIGINAL FIRST FLOOR PLAN

Fig. 19. Viewing from the Starr house



ORIGINAL FIRST FLOOR PLAN

Fig. 20. Flow of space and function relation

semi-enclosed space
core area
enclosed space
flowing direction

transitional space and activities between the indoors and the outdoors (see figure 20).

From the stain profile showing the front porch feature and from the period taste of front porch, it could have had turned porch posts supporting the second-story balcony. The front porch might have had more delicate details than the back porch. People tend to treat the front porch better so as to create a formal appearance, while the back porch tends to be more informal.

The house is a comfortable utilitarian home. The function and space of each room relate to each other. On the first floor, a dining room is a commodious room and serves as a central activity area for the family. It opens to other parts of the house and directly to the back and front porches. The entrance and stair hall in the first floor is for a formal invitation space to the parlor as well as for functional space connecting two separate wings and the upstairs. On the second floor, the entire area except the staircase and stair hall, is for sleeping area:- two bedrooms on each wing (see figure 21).

Even though the original plan fo the house did not have any bathroom, the bathroom was necessary to the house. During the 1940s alteration to the back porch a bathroom was added. But by putting the bathroom into the back porch, the original flow of space and function were destroyed (see figure 22). The transitional space between the house and landscape was blocked. The Gothic concept of relating the house to the landscape was diminished. The noticable change affects the exterior appearance and is not compatible with the original style.

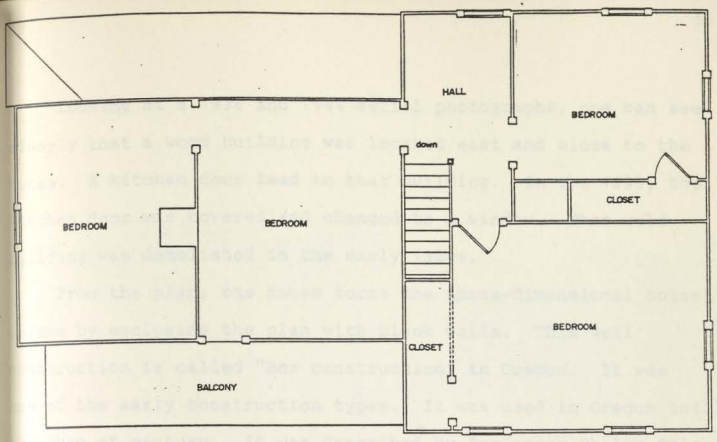
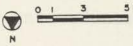


Fig. 21. Second floor plan



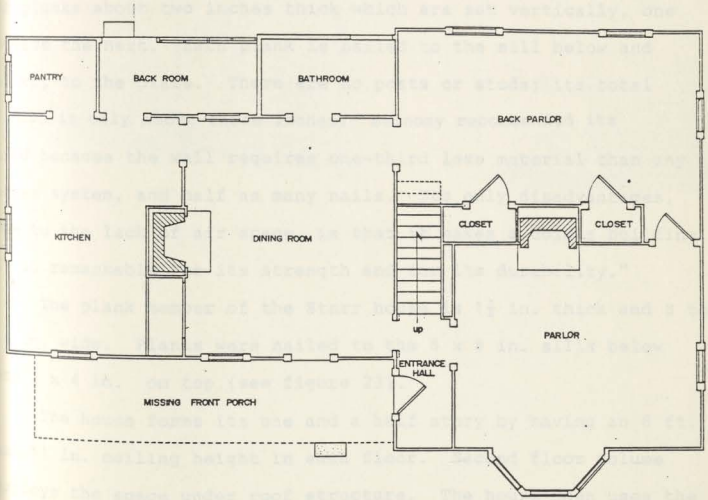
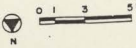


Fig. 22. First floor plan



Looking at a 1936 and 1944 aerial photographs, one can see clearly that a wood building was located east and close to the house. A kitchen door lead to that building. In the 1950, the kitchen door was covered and changed to a window. That wood building was demolished in the early 1980s.

From the plan, the house forms the three-dimensional house volume by enclosing the plan with plank walls. This wall construction is called "Box construction" in Oregon. It was one of the early construction types. It was used in Oregon until the turn of century. It was described by Professor Philip Dole that " it is a plank system with many antecedents on the east coast of the United States. The wall structure consists only of planks about two inches thick which are set vertically, one beside the next. Each plank is nailed to the sill below and at top to the plate. There are no posts or studs; its total finish is only about three inches. Economy recommended its used because the wall reguires one-third less material than any other system, and half as many nails. Its only disadvantages, due to the lack of air space, is that it makes a colder building. It is remarkable for its strength and for its durability."

The plank member of the Starr house is $1\frac{1}{2}$ in. thick and 8 to 10 in. wide. Planks were nailed to the 8 x 8 in. sills below and 2 x 4 in. on top (see figure 23).

The house forms its one and a half story by having an 8 ft. and 11 in. ceiling height in each floor. Second floor volume employs the space under roof structure. The house then uses the

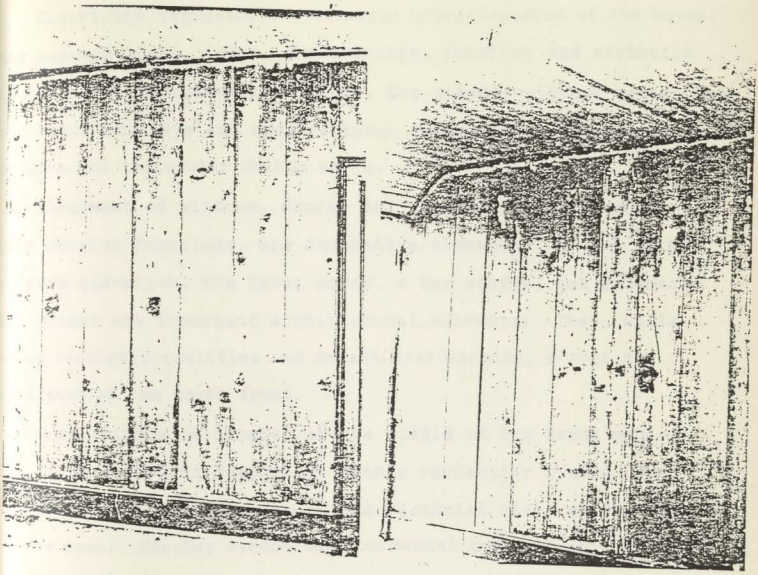


Fig. 23. Walls on the second floor show the method of "box construction".

construction simply and space advantagely, providing clear volumes and good proportion.

Elevations represent the exterior characteristic of the house. They express style, taste, craftmanship, function and aesthetic values. Plan, proportional volume, the steeply pitched gable roof, tall brick chimneys and architectural details on the elevation indicate the vernacular Gothic style.

Placement of windows, doors, and porches on elevations, while serving functions, are decorative elements. On the north or front elevation, the front porch, a bay window, and a central wall dormer are important architectural elements. They, while having aesthetic qualities and detail craftmanship, stress the importance of the house front.

A bay window is located at the middle of the front gable wing.It is a popular feature of Gothic vernacular houses. The bay window provides wider space and pictorial views of landscape for the room, The bay window has ornamental brackets which were influenced by the values and taste of the Italinate style. On the second floor, a central wall dormer not only gives the functional space for a door opening to the balcony, but also expresses a point of interest to the east-west wing.

General elements are carried onto other elevation to give continuity to the house as a whole. These elements are windows topped by cap mouldings, narrow vertical corner boards topped by small capitals, wide frieze board, and shiplap siding. Other

notable structural elements of the house are the brick pier foundation, woodwork, and chimneys. These elements and others will be referred to extensively in chapter IV about their significance, characteristics, and considerations and recommendations for rehabilitation.

Landscape

Professor Philip Dole described the rural landscape of the Willamette Valley, " The farm building group was a landmark which occured at intervals in each locality, not evenly spaced, half a mile apart, a mile. Each white house and unpainted barn had some individual architectural characteristic and in physical and social terms the place of each family was known over a wide area. Architecture, siting and association gave every house and barn a contemporary symbolic significance."[20]

A farm building group is normally located at the center of the farm. It is a characteristic of rural landscape in Willamett Willamette Valley. The building group of the Starr farm is composed of the house, a large barn, small barns and outbuildings. They were three-dimentional volumes at the center of the horizontal surrounding field, so that the farm building group was easily perceived as a landmark of the rural landscape.

Aerial photographs and maps were used to identify building group arrangement on the farm. Many buildings were destroyed before the present time as mentioned earlier. The driveway/ entryway was changed in direction. However, the present remains:-

the Starr house, a dairy outbuilding, walnut trees and the orchard, still express the landmark identity of the local area.

It is a characteristic of Oregon farm building arrangements taht the house faces the north and the barn is at the end of the line to the house. The distance between the barn and the Starr house was more than 150 feet. During the Starr's period, numerous large trees were in the orchard and the south of the house. In the rectangular orchard, fruit trees were planted in grid fashion but in diagonal direction to the house. The orchard was bounded by shrub hedges and perhaps simple wood fences. Outbuildings were also located at the back of the house and the barn. Each of them related to each activity and land use, such as the large barn could be a diary barn which related to the cattle-raising activity, hay field and diary building,and the small barn related to another kind of animal-raising such as sheep. Each small barn had a separate field for itself.

The large barn is considered a dairy barn because its character is seen from 1936 aerial photograph; the feeding racks were located on two sides of the barn. For comprehensive illustrations of the layout at the core area from 1936-1985 see figure 24-28).

The orchards and vegetable gardens were characteristic of landscape planting during the historic period in Willamette Valley. This has been shown by lithographs of houses and farmsteads in the Illustrated Historical Atlas Map of many counties. The orchard could surround the house on three sides or only on one side. Fruit trees were available from several

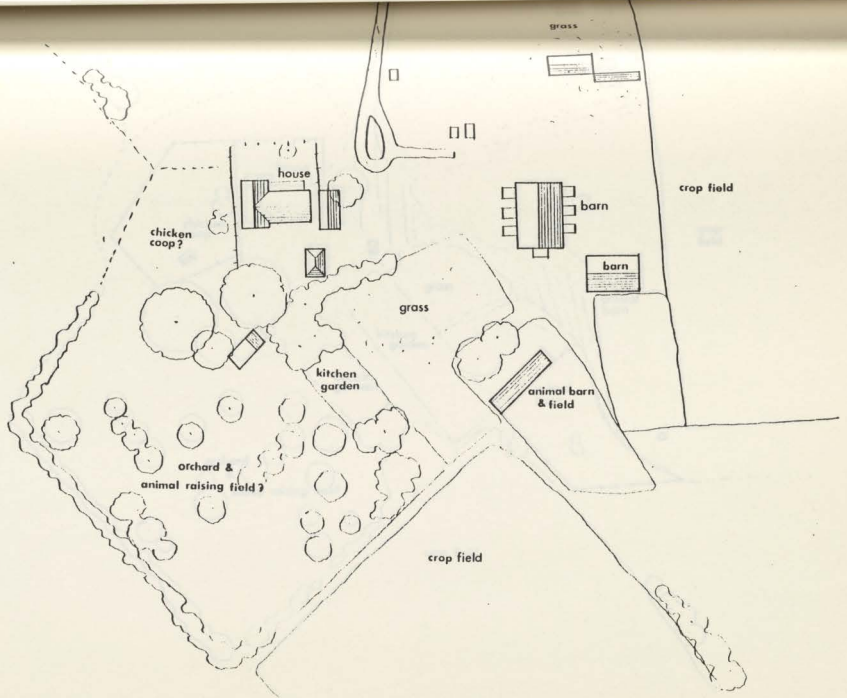


Fig. 24. Lay-out at the core are in 1936.

note* Figure 24-28 are based on aerial photographs and field surveys.

1936

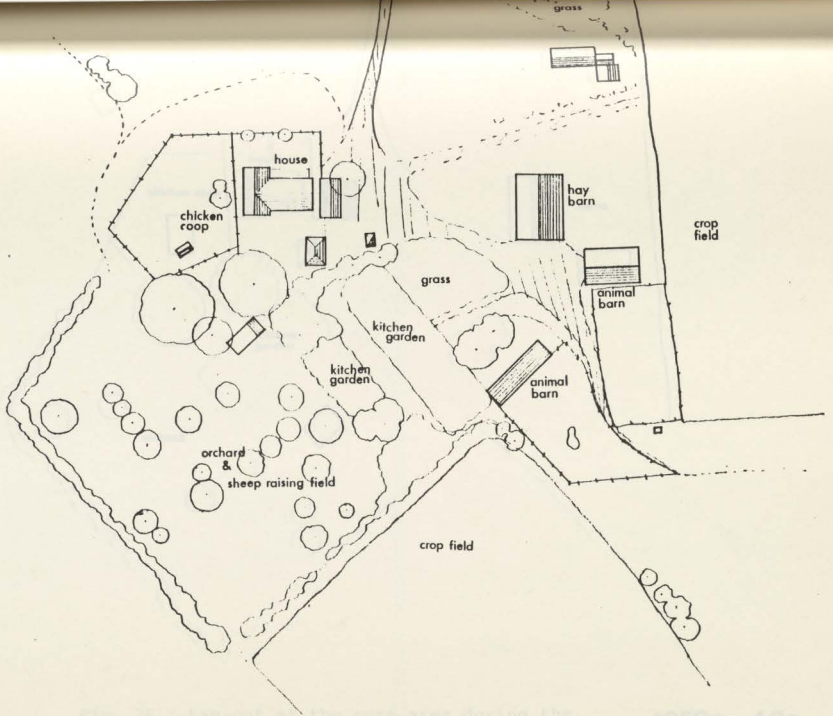


Fig. 25. Lay-out at the core area in 1944.

1944

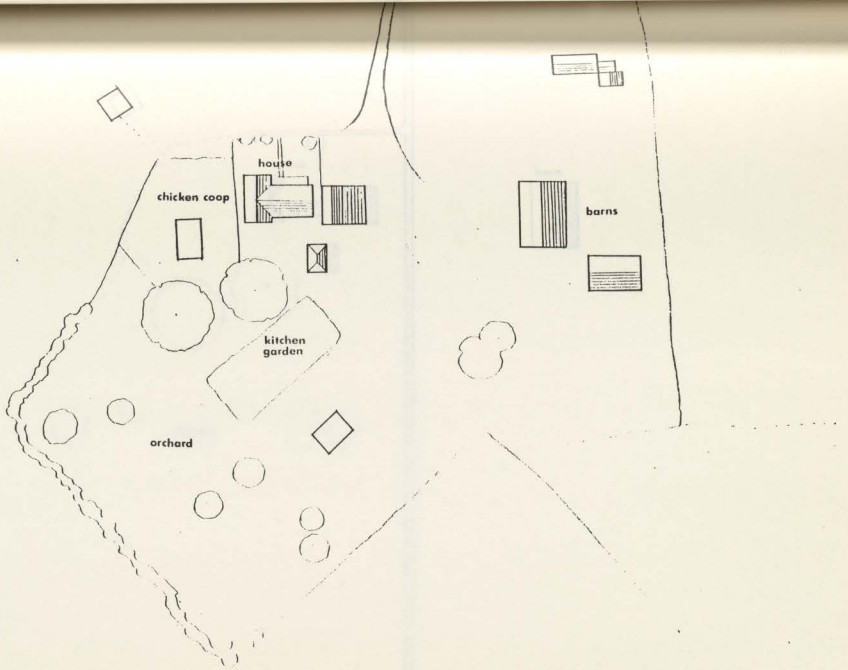


Fig. 26. Lay-out at the core area during the 1950s-1960s.

1950s – 60s

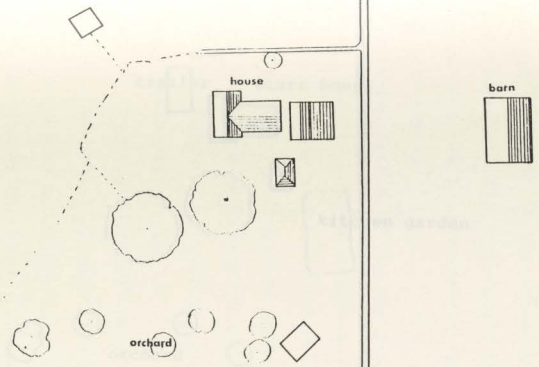


Fig. 27. Lay-out at the core area in the 1970s.

1970s

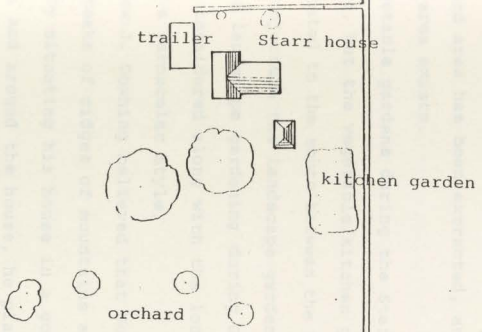


Fig. 28. Lay-out at the core area in 1985

nurseries. These trees were varieties of plums, pears, peaches, cherries, and apples. In the existing orchard of the Starr house one kind of pear and two kind of apple trees are found. The orchard has decreased its function and integrity since the historical period. The orchard are was used as a stock-raising field, as shown on 1944 aerial photograph. White dots on the photograph perhaps indicate sheep in the field. A sheep pen is noticable at the north of the orchard. Also, the trees in the orchard decrease rapidly, especially in the last twenty years. The orchard area has been extracted, and today half of the original area exists.

Vegetable gardens during the Starr's period cannot be identified, but the vegetable/kitchen garden was apparently always located to the south between the house and the barn.

To conjecture the landscape gardening of the house, the concept of landscape gardening during Gothic revival period should be considered along with the local taste. When joined, they form a vernacular style.

Andrew J. Downing believed that Gothic style blend best with the peaks of ridges of mountains and trees. He presented his idea by situating his house in a good spot with good prospects, and around the house, he planned a lawn. "Circular flower beds were to be built in the lawn and near the dwelling house so thay they could easily be seen by the inhabitants and their visitors. Also, during the summer months, fragance could anter through the windows. He did not advocate foundation

plantings of any kinds, though sometimes he did suggest shrubs in circular beds. He banished the planting trees in a straight line, except for an orchard. Rather he preferred either singly or in masses. He divided trees into two groupd: the round-headed ones which he called the beautiful, and the pointed ones which he called the picturesque. These were to be planted some singly and some in groups, to achieve the proper effect. It is easy to see that the pointed trees (larch, spruce, hemlock) repeated the lines of the peaks and towers on the house and that the round forms (white oak, maple) stood "beautifully" alone."[21]

From the lithographs illustrating houses in Willamette Valley during late nineteenth century, landscape gardening in some Gothic houses resembled Downing's ideas (see figure 29-31).

Even though Downing did not prefer planting trees in a straight line, one kind or different kinds of trees planted along straight fences, was often popular throughout the Valley. These different kinds of trees are willow, fir, maple, and others. Trees and shrubs such as cherry and rose were found in rows or were scattered around the front yards. These yars were lawn or natural grass in season.

A strong characteristic of the landscape element in the late nineteenth century was picket fences. A fence of square pickets over the wide baseboard was typical of the time. Picket fences which enclosed only the house, included with the front and back yards, were preferable. However, they could also

enclose either the kitchen garden and the orchard.

From early aerial photographs, thin lines surrounding the Starr house are detected. They are believed to be lines of picket fences. Small trees were planted near the front fence. The front yard might have been just a lawn during the historical period.

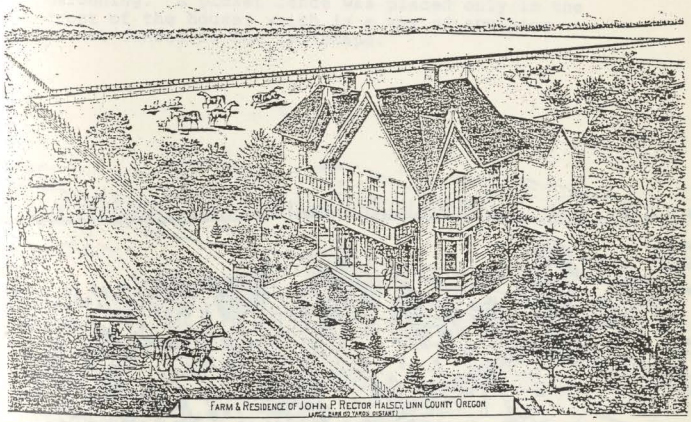


Fig. 29. Circular flower beds are arranged in the front yard. A picket fence surrounds the house. Outbuildings and an orchard are in the backyard. These are some landscape characters of the Gothic farmhouses.

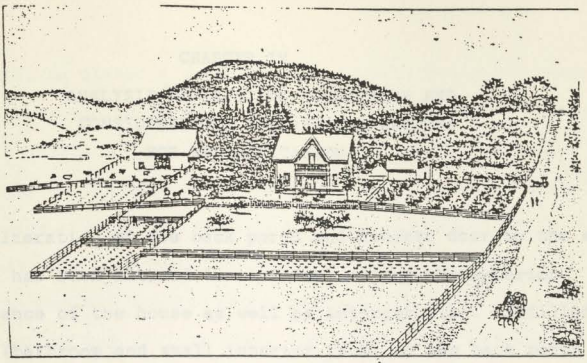


Fig. 30. Pointed trees repeated the line of the roof peaks, which illustrate the concepts of Gothic landscape gardening. A picket fence was placed only in the front of the house, which is a way of applying picket fences in the landscape.

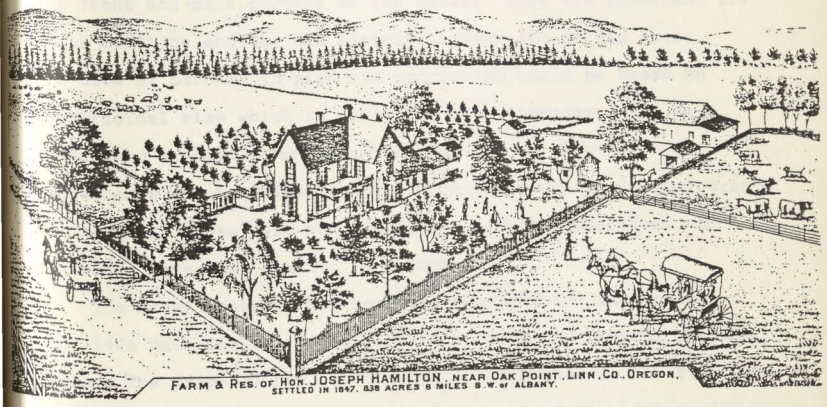


Fig. 31. Trees and shrubs are scattered around the front yard, An orchard is on one side of the house and the house is surrounded by picket fences, that are another landscape arrangement in the Gothic farmhouse.

CHAPTER IV

ANALYSIS OF EXISTING CONDITIONS AND CONSIDERATIONS AND RECOMMENDATIONS FOR REHABILITATION

Plan

Alteration of the back porch and kitchen door to the east (which has been altered to a window) affect the exterior appearance of the house as well as interior plan. Infilled rooms (bathroom and small interior room) in the back porch were done in an intrusive manner to the original floor plan in which the original function was not respected. A proposed floor plan for rehabilitation is recommended to regain the original functional plan of the house and to provide convenience to occupants.

On the first floor, the first issue is the need to reconstruct the front and back porches of the house. They are important for their function and for the historic appearance of the house. The size of porches in plan and proportion could be based on the original size which is tracable. The appearance may be determined through research and analysis of the porches character since the historical information such as old photographs of the Starr house were not available. Porch appearances are discussed under the section on porches.

The other issue is the need of bathrooms for the house. The 1940s bathroom should be removed to give the area to the back porch. The proposed new location of the bathroom on the first floor is at the back parlor room. In a part of the back parlor

room will be placed a bathroom to the east, while the other part to the west can be used for a bedroom. By putting the bathroom at this location, and recreating the back porch, the south elevation will preserve its wonderful functional and historical appearance. Also, the back parlor room maintains its function as a bedroom. The back parlor might have functioned as a bedroom judging from the two closets on the north wall. This room perhaps was used by Edwin Starr's mother, Elizabeth Demmick, who was noted living with Edwin Starr during his time.

The pantry room is a small room,measuring 5 ft. by 6 ft. 5 in.. It was originally used for food storage. It is proposed to be a laundry room which is functionally associated with the service area of kitchen and the back porch. The expansion of the pantry is possible in order to provide larger space for laundry facilities (see figure 32 for proposed first floor plan). This proposed alteration has little effect upon the appearance of the south elevation because the original function and elevation still maintain their significant characteristics.

The kitchen originally had a door which opened to the east. A door using the detail of the back door or a window using the typical window detail can be used. But since there is no need for a door opening to that side, a window may be a good choice. A window will provide a good view to the kitchen, and the furniture arrangement for the kitchen will be planned easily.

Also, a bay window could be used for replacement of a typical window. A bay window at the gable end elevation was a characteristic of the vernacular Gothic houses.(see figure 31).

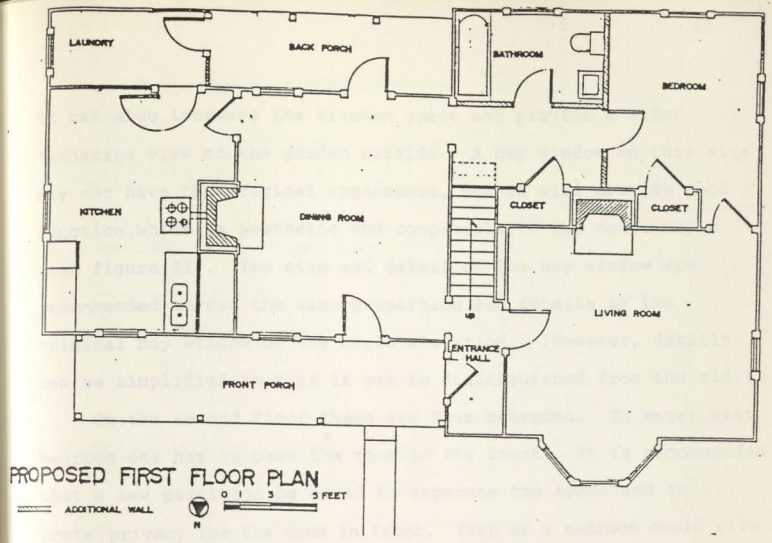


Fig. 32. The laundry room is possibly expanded in order to provide larger space for laundry facilities.

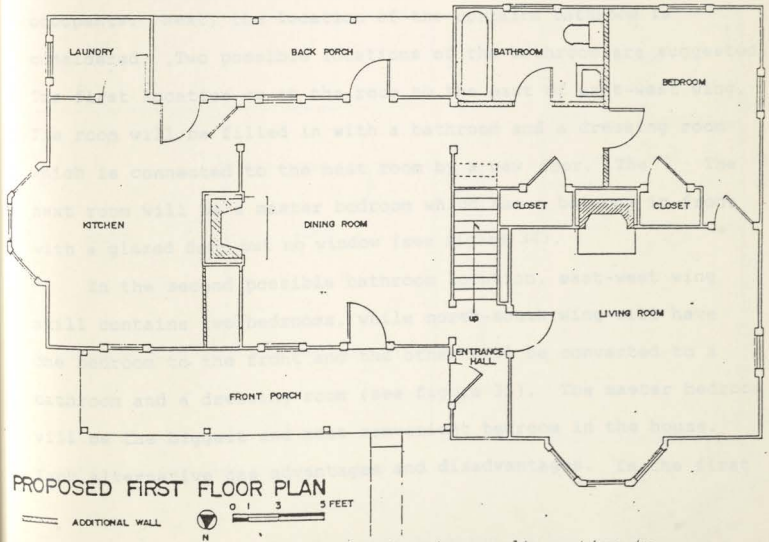


Fig. 33. A bay window addition is an alternative to provide larger space for the kitchen.

It can also increase the kitchen space and provide a wider landscape view of the garden outside. A bay window on this side may not have the original appearance, but it will provide good function,which is aesthetic and compatible to the house style (see figure 33). The size and detail of the bay window are recommended to use the same proportion and details as the original bay window on the north elevation. (However, details can be simplified so that it can be distinguished from the old.)

On the second floor there are four bedrooms. To enter east bedroom one has to pass the room in the front. It is recommended that a new partition be added to separate the space and to crate privacy for the room in front. Part of a bedroom could give space for a bathroom. This will provide convenience to occupants. Next, the location of the upstairs bathroom is considered. Two possible locations of the bathroom are suggested. The first location os at the room to the east of east-west wing. The room will be filled in with a bathroom and a dressing room which is connected to the nest room by a new door. The The next room will be a master bedroom which has a balcony in front with a glazed door but no window (see figure 34).

In the second possible bathroom location, east-west wing still contains two bedrooms, while north-south wing will have one bedroom to the front and the other will be converted to a bathroom and a dressing room (see figure 35). The master bedroom will be the biggest and most convenient bedroom in the house. Each alternative has advantages and disadvantages. In the first

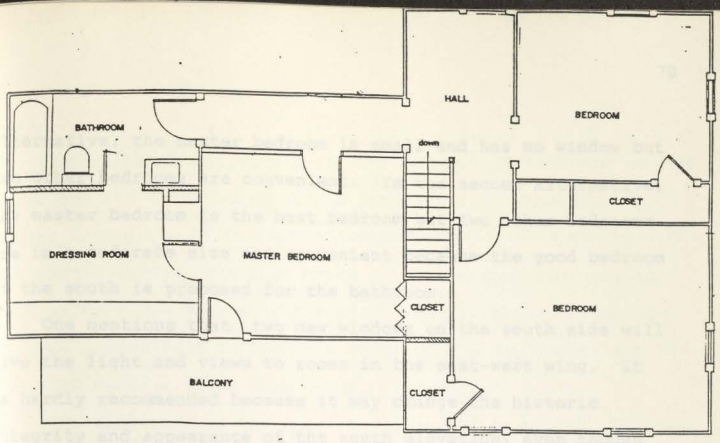


Fig. 34. The location of the bathroom in the east bedroom is one of the alternatives of providing a bathroom on the second floor.

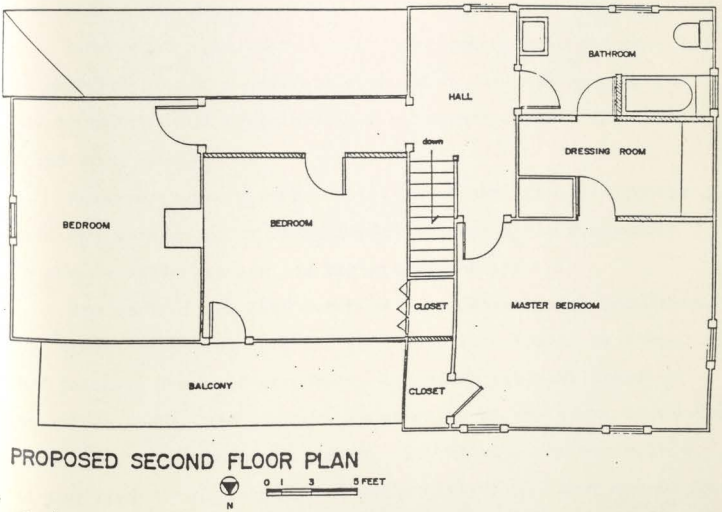


Fig. 35. The location of the bathroom in the south bedroom is the other alternative.

alternative, the master bedroom is small and has no window but two other bedrooms are convenient. In the second alternative, the master bedroom is the best bedroom but two other bedrooms are in a moderate size and convenient because the good bedroom of the south is proposed for the bathroom.

One mentions that two new windows on the south side will give the light and views to rooms in the east-west wing. It is hardly recommended because it may change the historic integrity and appearance of the south elevation, even though new windows are used details and size to match the old windows.

Roof

The roofs of the Starr house are gables. It has open valleys where the two gable roofs of the perpendicular wings meet each other. The pitch is 45 degrees, characteristic the appearance of the Gothic style. The back porch roof is a shed roof sloping down south. The degree of the porch roof is about 20 degrees. The bay window roof follows the shape of the bay window and has about 25 degrees slope down north.

The condition of the main roof seems to be sound. But the attic area was not accessible at the time of inspection and should be inspected at the tine the shingles are removed for reroofing. The shingles are in poor condition. There are holes in the roof, through which water is able to get into the house and so do birds and bats.

Roof structural members that have been rotten and cannot be serviced properly should be replaced or repaired by matching new material. All organic matter which has entered from roof holes should be removed.

Because the roof covering is in bad condition, reroofing with new wood shingles is recommended to maintain protection to the house and retain its historic appearance.

The roof of the back porch is in a deteriorated condition. The condition of the roof and roof structure should be inspected for damage. The roof structure, including rafters, seems to be rotten due to the moisture penetration at the joint where the roof meets the main house siding. It was also not accessible at the time of inspection, but before reroofing, they should be

repaired or replaced withnew material matching the original. For methods of replacing rotted parts of the structural frame, refer to appendix C.

Flashing should be installed in the valley and around the chimneys of the main roof, and along the joints where the minor roofs join the siding. Gutters should be considered to installed along the roof edges.

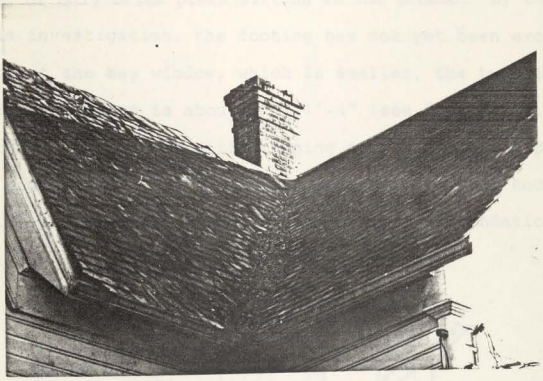


Fig. 36. The roof of the Starr house, at the valley.

Masonry Work

Foundation

A foundation provides a level and uniformly distibuted support for the house. The foundation must be strong enough to support and distribute the load of the house, and sufficiently level to prevent wall defects and to keep doors and windows from sticking. The foundation of the Starr house is modulure foundation formed by brick piers. The footing of the foundation may be brick of stone slab embedded in the ground or only brick piers sitting in the ground. By the time of the investigation, the footing has not yet been excavated. Except at the bay window, which is smaller, the typical size of the masonry piers is about 8" x 1'-4" (see figure 37). Piers are placed to support sills running around the house perimeter (see figure 38). The brick pier foundation of the house becomes significant because of the uniqueness of the foundation type and original.

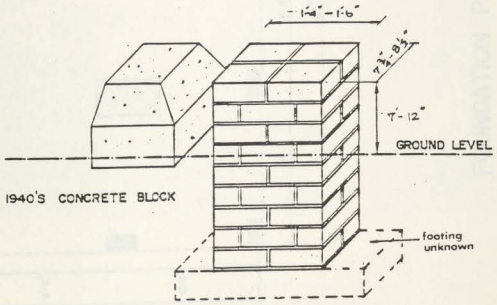


Fig. 37. The masonry pier of the Starr house.

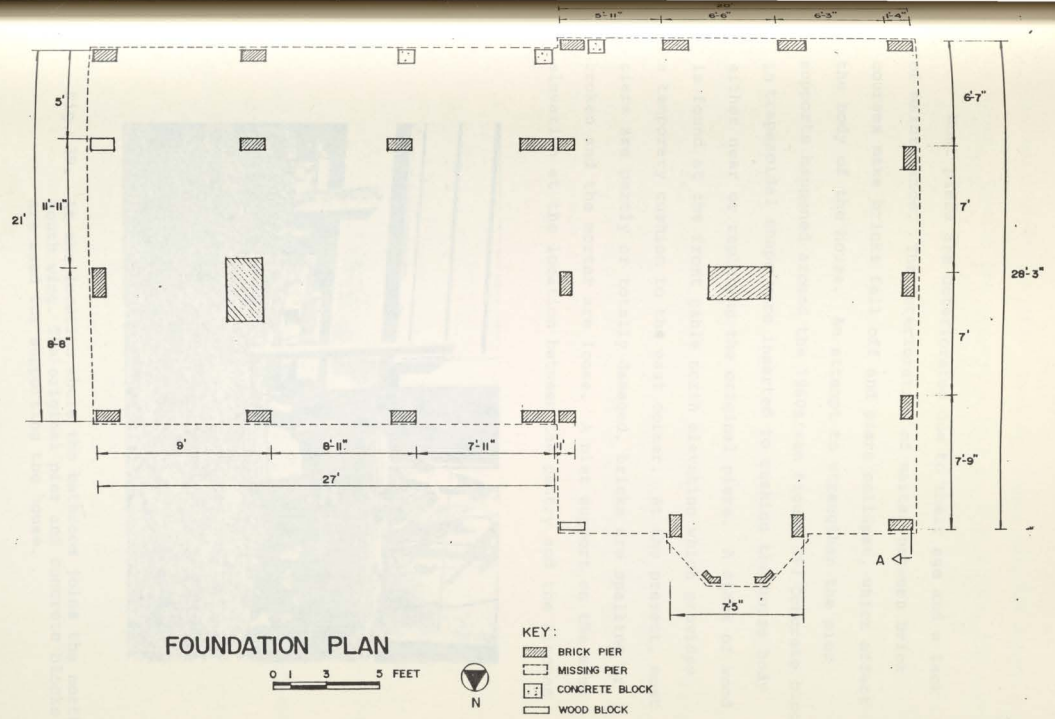


Fig. 38. Piers are placed around the house perimeter.

Most piers are deteriorated due to their age and a lack of maintenance. The deterioration of martar between brick courses make bricks fall off and piers collapse, which affect the body of the house. An attempt to strengthen the pier supports happened around the 1960s(see figure 39). Concrete blocks in trapezoidal shape were inserted to cushion the house body either near or replacing the original piers. A stack of wood is found at the front gable north elevation which provides a temporary cushion to the east corner. At the present, most piers are partly or totally damaged, bricks are spalling or broken and the mortar are loose. A pier support on the east elevation at the location between the pantry and the kitchen

Fig. 39. At the location where the bathroom joins the north-south wing. The original pier and concrete blocks are used for supporting the house.

is missing (see figure 41). This may cause serious damage to the house. Due to the excessive load at that point, the pantry room is gradually separating from the main house body. The excessive bending moment forces toward the south direction on the southeast corner pier of the pantry. The whole house could be tilting toward the south direction (see figure 40-42).

The normal symptom of the level change due to the failure of pier supports is the bending or sagging in the structural members of which they support.

The piers along the back porch were missing and concrete blocks were inserted for replacement. The load appears without sufficient supports therefore causes a sagging in the middle of the back porch structure.

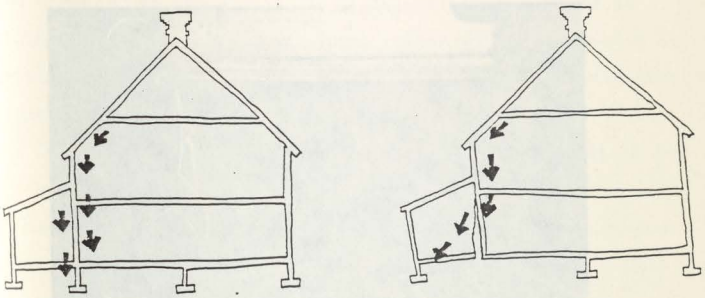


Fig. 40. Distortion of frame dues to missing support; loads pressure on the missing pier, and shift to the left (pier of the pantry). It then suffers from the excessive bending moment.

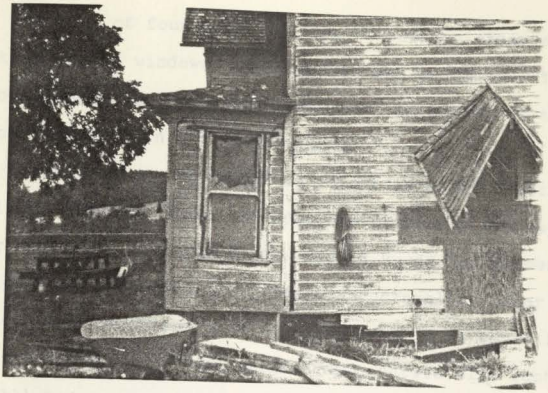


Fig. 41. The location between the kitchen and the pantry indicates the missing pier.

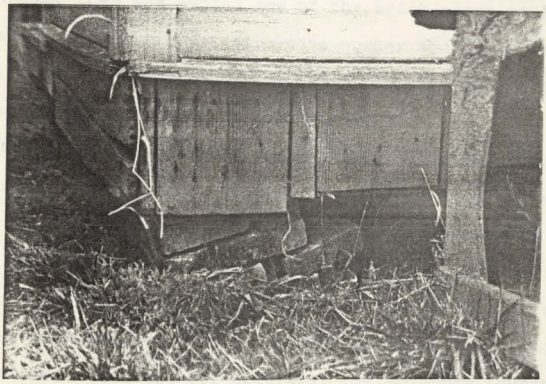


Fig. 42. The pier of the pantry.

The sign of foundation failure is seen on other sides in sticking of the windows; they cannot open or close. The serious damages to the house structure can worsen if the piers are not repaired in the near future.

Excavation may be needed to investigate and stabilize the footings. To make sure that footings and piers can supply enough strength to support the loading house and prevent future settlement, recommendations from a structural engineer may be needed. The recommendation may very well be to consolidate the original footing with new reinforced-concrete slab footing.

All brick piers need repairing; all deteriorated bricks should be replaced with sound bricks which can be obtained from brick piers from the second row of the brick piers underneath the house, then the second row of the brick piers could be replaced by new bricks. All loose mortar should be removed and repointed with a new mortar matching the old. Information about replacing mortar refers to appendix B.

Moisture is a dangerous accelerator to the deterioration of all kinds of structural members in either masonry or wood works. By using a moisture detector, moisture was detected in several spots in structural members around the house, such as in wall siding, sills, and the brick piers. There is no sign of excessive moisture in any structural members, including the foundation. However, for accuracy, the moisture investigation should be conducted at other times, such as in the winter and fall, because this study was done only in summer.

Brick piers raise the Starr house body above the ground approximately 7 inches at the south side and 12 inches at the north side. The brick pier foundation is significant as a part of the historic integrity of the house. The proportion of the pier height to the house height is important to the original appearance of the house. Piers can be restored to their original appearance and leveled so the house can sit secured and level. Brick piers can be repaired by cleaning, repointing and replacing deteriorated bricks with sound bricks and new mortar which match the old mortar in color and texture. Sound bricks should match the original in size, color and texture. It will be difficult to find new bricks that match the original. By using bricks from the inside row of piers underneath the house, to replace the missing or broken bricks outside, is a possibility. The inside row of brick piers can then be replaced with new bricks. It may also be difficult to remove bricks from underneath the house and construct new piers because of the narrowness of space.

The narrowness of space underneath the house creates other problems as well, it limits the installation of mechanical systems (such as heating ducts and a furnace), and it is difficult to repair and investigate the structural floor system and to install the insulation under the floor.

However, soil underneath the house can be painstakingly dug out to provide space as needed, while the soil level around the house is left to retain its original appearance. Proper drainage should be installed at the same time that the

foundation work is being done. Drainage is important to help carry water away from the building. The method of drainage recommended is: putting gravel around the house perimeter, and a drain pipe under the gravel sloping down to dry wells of downsprouts.

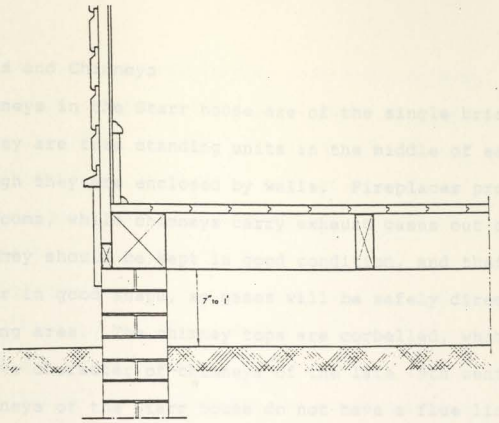
The other alternative of providing adequate space underneath the house and repairing the brick piers, is to raise the house about 2 feet above the ground. This alternative will provide many advantages such as good ventilation and the ease to work under the house. But, it creates another difficult task- raising the house means the fireplaces and chimneys which are at the center of the house, must also be raised. It seems impossible to raise the house without damaging the fireplaces and chimneys. However, if this decision is made to raise the house, then the fireplaces and chimneys can be dismantled and rebuilt. They must be documented by photographs and drawings before being dismantled. Then, they can be rebuilt to their original appearance by using the original bricks, especially where they are visually noticable such as at the chimney tops. Bricks at the fireplaces which are unservicable may be replaced with original sound bricks from invisible areas, such as underneath the roof,and the bricks underneath the roof can be replaced with new bricks (for more information on fireplaces and chimneys see the corresponding section).

Another problem of raising the house is the increase in the height of the brick piers. Original bricks have to be used at the additional height so as to retain and to match the overall appearance. Bricks from the inside row of piers

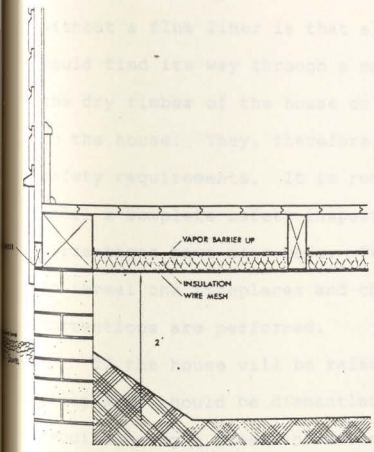
underneath the house, and from the back courses of its own pier, can also be used for this task.

Whatever the alternatives, proper drainage should be installed by the method mentioned earlier. Even though the house has drainage at the foundation area, damp may still be rising up from the foundation and damaging the wood structure. There is presently no moisture barrier between the masonry ans the sills. To prevent future damage, the moisture barrier should be installed under the sills and under the floor, along with the insulation (the insulation material readily provides a vapor/moisture barrier on one side). Soil cover material is also recommended to be placed on the ground at the area underneath the house. Illustrations of foundation and floor remodelling see figure 43.

All temporary concrete blocks and wood cushions can be removed after the original foundation is repaired.

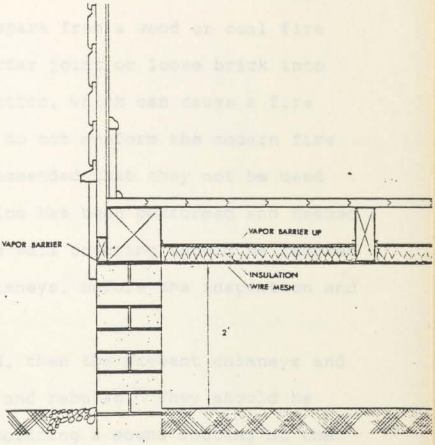


ORIGINAL FOUNDATION & FLOOR STRUCTURE



FOUNDATION & FLOOR REMODELING

1st alternative



FOUNDATION & FLOOR REMODELING

2nd alternative

Fig. 43. Foundation and floor remodeling

Fireplaces and Chimneys

Chimneys in the Starr house are of the single brick thick type. They are free standing units in the middle of each wing, even though they are enclosed by walls. Fireplaces provide heat to rooms, while chimneys carry exhaust gases out of the house. They should be kept in good condition, and their bricks and mortar in good shape, so gases will be safely directed from living area. The chimney tops are corbelled, which is a distinctive character of chimneys of the late 19th century.

Chimneys of the Starr house do not have a flue lining inside, thus they are unsuitable for handling the higher exhaust temperature of coal or woodstove. The problem with chimneys without a flue liner is that a spark from a wood or coal fire could find its way through a mortar joint or loose brick into the dry timber of the house or attic, which can cause a fire to the house. They, therefore, do not conform the modern fire safety requirements. It is recommended that they not be used until a complete safety inspection has been performed and needed corrections have been made. The wall covering should be removed to reveal the fireplaces and chimneys, before the inspection and corrections are performed.

If the house will be raised, then the present chimneys and fireplaces should be dismantled and rebuilt. They should be rebuilt using a liner and incorporating a sound footing at the same time. The historic bricks should be reused, and every effort should be made to keep the rebuilt chimneys as close to

the present size and character as possible. However, the fireplaces and chimneys of the Starr house at least need repairing , if they are not dismantled. The mortar and/or bricks may be loose, therefore, repointing and replacing bricks may be necessary. They can use the same method of repointing masonry mentioned in appendix B.

Fireplaces that don't have dampers, they can be put in. The flue liner can also be installed in the old chimneys by using the following methods:

1. Insert a metal liner in the existing chimney, if it is straight enough. It will have to cut a thimble opening to tie into the liner, but otherwise it won't have to break into existing brickwork.

2. Rip out the face of the brickwork in each room through which it passes and insert a masonry flue tile; rebrick

3. The new European method; a heavy rubber tube is inflated inside an existing chimney, and then a groutlike substance is pour around it, which hardens and becomes a flue.[22]

From the evidence of the house, a woodstove outlet was added to each existing chimney. In the north-south wing, a thimble is located in the north bedroom. In the east-west wing chimney, a woodstove is connected to it from the kitchen. Woodstove may be used again once the chimneys are completely repaired. Non-combustible walls and floors should be installed behind and under stove.

Many of the fireplace bricks are deteriorated and

unservicable due to long periods of service. They are not fire bricks, Bricks at the fireplaces could be replaced by original bricks from hidden areas, such as underneath the roof, or by using new bricks matching in size and color with the old. Fire bricks may be used if they are specially produced similar in size and color to the old. If they are not available common bricks can be used, but fire proofing material should be installed in the back of the fireplaces.

Beside the flue lining, a cap of mortar should be placed on top course brick of the chimney tops, sloping the mortar cap from the outside of the bricks toward the flue line (see figure 46).

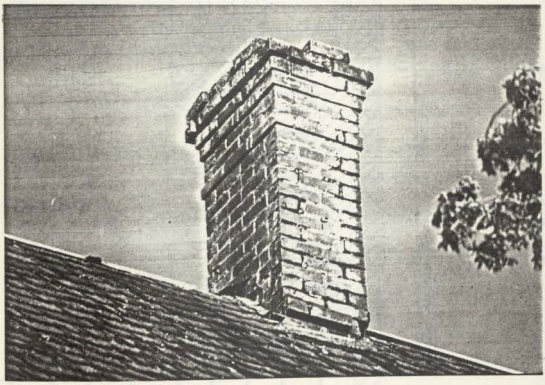


Fig. 44. The corbelled brick chimney of the Starr house.

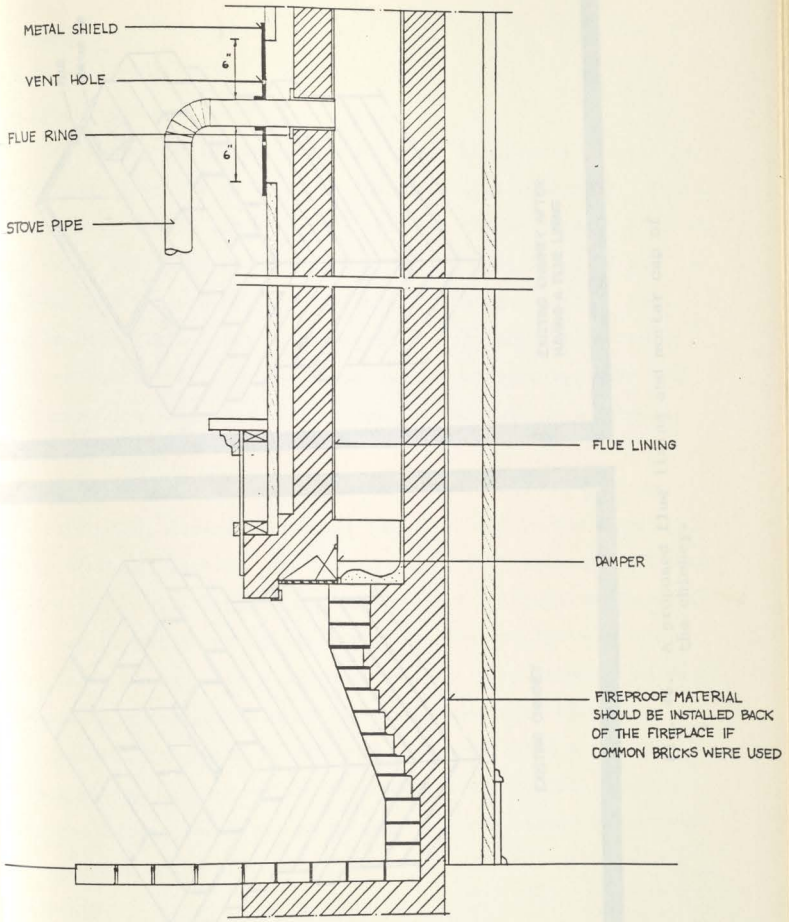


Fig. 45. The installation of a damper, a flue lining and a stove pipe in the fireplace of the Starr house.

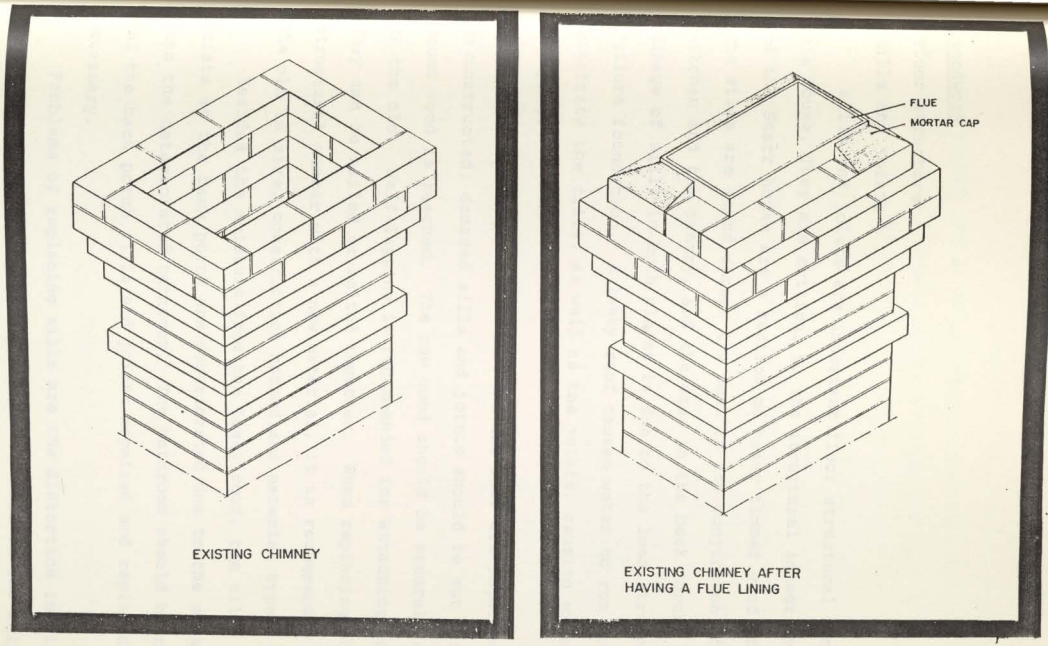


Fig. 46. A proposed flue lining and mortar cap of the chimney.

Woodwork

Floor structure

Sills and joists

Sills and joists are important floor structural members of the house, They are critical to the structural integrity. Sills of the Starr house are a section of heavy timber wood of 8" x 8". The sills are sound except the ones in the conjuction of the kitchen and the pantry, and the ones in the back porch. The damage of sills in both places is due to the load stressing on failure foundation. A leaky roof causes water to run down and penetrate the sills, as well as the joists, causing extensive decaying.

After the house foundation and the roof are repaired or reconstructed, damaged sills and joists should be cut back until sound wood is reached. The new wood should be securely attached to the old. Half-lapping is recommended for attaching the sills. They can be nailed or bolted together. When replacing the old structural member with a new material, it is recommended to match the old in size, construction method and material type.

Besides the moisture from the leaky roof, the sills and joists at the back porch are deteriorated due to the moisture from the deteriorated bathroom, The bathroom should be removed and the back porch sills and joists repaired and replaced as necessary.

Problems of replacing sills are the distortion in planks, because the sill is what the planks are nailed to and sill carries all the weight of the house. When repairing sills, the

wall structure should be considered seriously, and a method found to secure the wall structure while the sill is temporarily out of service.

Visual inspection of other first floor joists through the space beneath the house showed that most joists are sound and servicable. However, full inspection of the joists was not possible due to the low clearance under the floor. A full inspection can be made at the time the house is adjusted for level and when the space underneath the house is expanded during the process of rehabilitation.

The second floor joists are sound, but full inspection and repair can be carried out at the time the floor boards are taken off for installing a mechanical system, such as an electrical system.

For further technical information about repairing structural wood members refers to appendix C.

Floorboards

The floorboards in the house are in sound condition. Most floors in the house are tongued and grooved. They have never had a finish applied to them, but for protection the stain and time-worn, floors should be cleaned and a wax should be applied to them.

On the first floor, floors in the north-south wing are the original and are in good condition. The stain over the floors has been caused by organic substances, animal waste from birds

and bats, stored hay, and dirt from negligence. Floors in this wing need cleaning. When cleaning, always begin by using the gentlest cleaning solution, such as mild soap and warm water. If this is not sufficient move up to a slightly stronger cleaner and so on. Make sure to do a test patch i n a small, in conspicuous area before using any cleaner on the entire surface to be cleaned. Use of harsh cleaner such as lye are not recommended because they will bleach the wood and raise the grain.

The floor in the dining room is a new floor which has been placed on tcp of the old; perhaps the ols floor has been worn out because the room was used regularly as a common room. The floor is in good condition and matches the old except for the floorboards running in the opposite direction. The only indication of the floor change was a little step on floor level. The dining room floor needs cleaning by the same method as the rooms in the north-south wing.

The kitchen floor was originally unfinished. The linoleum carpet was covered partly in a later period, perhaps around the 1950s. The carpet is worn and should be removed. It will be more practicable for the kitchen floor to have an appropriate protection. A water resistant resilient flooring; such as sheet materials or tiles, should be used for this task, but the design pattern should be simple and compatible to the style of the house.

The floor in the pantry is also in good condition, but it has suffered from the foundation settlement. It should be fixed for level and cleaned to recall its appearance.

Even though the floor of the back porch is a new floor over the original one, it has suffered the most. Floorboards are broken, missing and deteriorated. After removing the bathroom, all floorboards should be replaced and reconstructed by using the same size and material as the original.

On the second floor, floors are in good conditon. The only problem is the stain from organic substances (see figure 47). They need cleaning, using the same method as for the first floor.

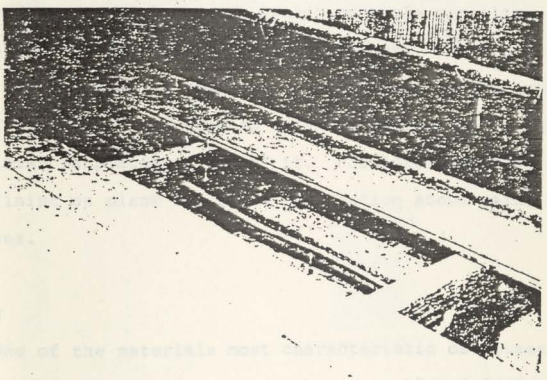


Fig. 47. Floor boards of the second floor.

Ceiling

Ceiling on all rooms are three inch tongue-and-groove boards. They are in sound condition, except for the peeling paint. They need only to be cleaned and repainted.

Wallstructure

Wall planks

In the box construction of the Starr house, planks are the wall structure that provides the surface for attaching siding for exterior and for placing the wallpaper for interior. It is important to maintain sound condition so as to serve the proper function as the wall structure. Planks of the house are very sound and have good dry surfaces for siding. They do not need any special repair, except possible renailing, if loose boards are found. The bottom of the planks, where the front porch was removed, or wherever it is exposed to the exterior, should be cleaned and treated by a wood preservative before a new finish is placed on top of it. For information on interior wall finish on plank walls see the section about paint and finishes.

Siding

One of the materials most characteristic of houses is wood siding. The siding of the Starr house is 1" x 4 3/4" shiplap siding type. It was secured to the plank walls underneath. Most of the siding of the house is generally in good condition. The problems that exist are minor ones: cracked boards and paint that has been peeling off (see figure 48).

Large cracks or splits are hard to seal by coats of paint and still allow water to enter through it. Siding that

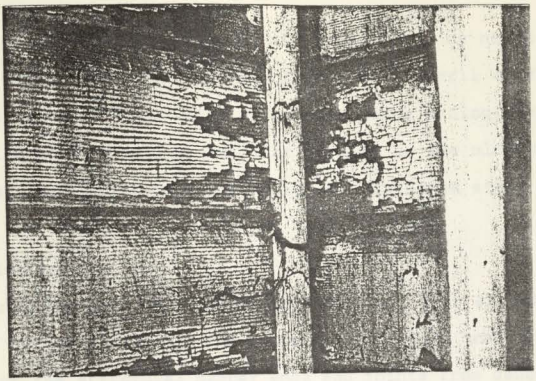


Fig. 48. Paint on the siding has been peeling off.

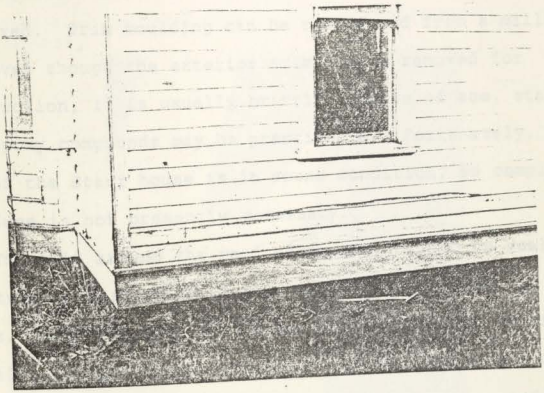


Fig. 49. A large on the siding should be replaced by a new piece.

is badly cracked or split should be replaced by new pieces of board which match the old (see figure 49). Small cracks can be filled by using a caulking compound. Loose siding should be renailed using new nails similar in size to the old, which should be rust resistant, galvanized iron or stainless steel nails.

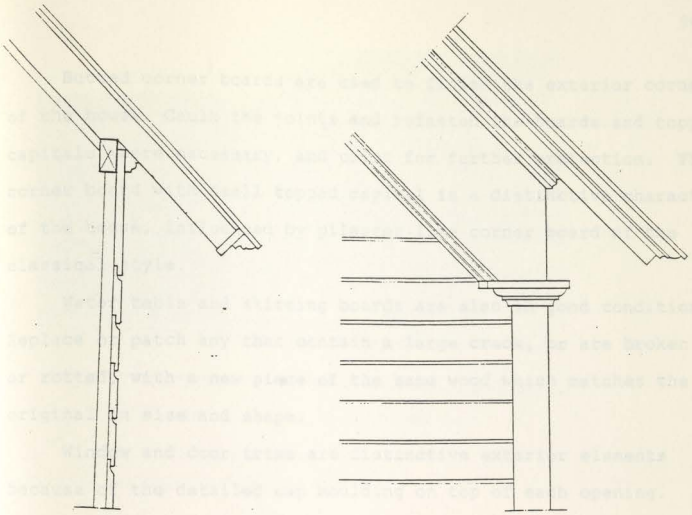
Exterior trim

Exterior trim is pieces of material, such as wood, which cover structural seams for an aesthetic finish and to protect the structural member ends and joints from dangers (i.e. moisture and pests).

Because trim is so important, loose and rotten trim was to be investigated. Replace trim only if it can absolutely not be preserved. Trim moulding can be reproduced from a mill.

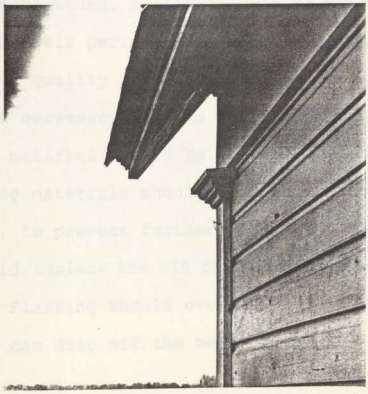
Even though the exterior trim can be removed for reproduction, it is usually brittle because of age, stabilization with epoxy compounds may be practicable. Fortunately, exterior trim of the Starr house is in sound condition, so complicated procedure is not presently necessary.

The trim around the roof edges is intended to seal off the structural intersection of the rafters, top plates and wall planks. Moulding and wide frieze boards are used to trim the top wall and roof edges. These are in good condition and probably need only refastening at the loose spots, and repainting for longer service.



section at the roof edge and wall

elevation



corner boards with topped capital

Fig. 50. The Exterior trim

Butted corner boards are used to finish the exterior corner of the house. Caulk the joints and refasten the boards and topped capitals where necessary, and paint for further protection. The corner board with small topped capital is a distinctive character of the house, influenced by pilaster-like corner board of the classical style.

Water table and skirting boards are also in good condition. Replace or patch any that contain a large crack, or are broken or rotted, with a new piece of the same wood which matches the original in size and shape.

Window and door trims are distinctive exterior elements because of the detailed cap moulding on top of each opening. They display fine craftmanship and the style of the period. Door and window trims are placed where the opening is made. All trims must be sound, nailed securly to the wall behind, and caulked around their perimeter to prevent leaks between siding and trim with a quality product. Missing sills or casing should be replaced as necessary, or the rot should be scrape free, then the remaining material should be stabilize with an epoxy compound. The surrounding materials should also be treated with a preservative , to prevent further deterioration. New metal flashing should replace the old for covering the top piece (head trim). Flashing should overhang the head trim by at least $\frac{1}{2}$ ", so water can drip off the metal edge.

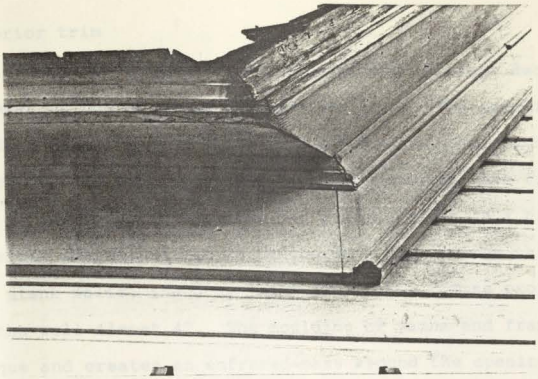


Fig. 51. Moulding at the roof edge

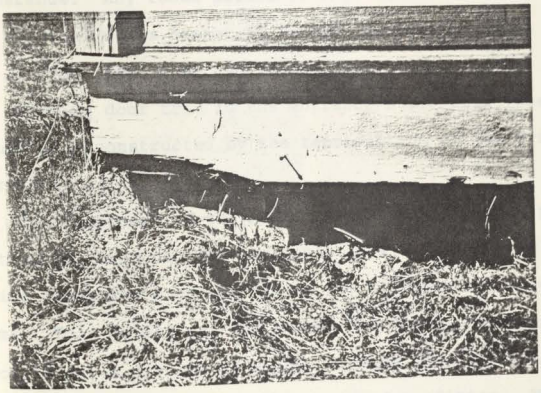


Fig. 52. Water table and skirting

Interior trim

The most distinctive and significant interior decorative element of the house is the interior trim. The interior trim is door jambs, window frames and baseboards. Door jambs and window frames employ the same type of moulding (see figure 53). The projection of door jambs and window frames is a historic interior characteristic of the house. Because the thinness of the plank walls, the door jambs and window frames project out of the wall almost 4". The moulding of jambs and frames is unique and creates an enframed-mass around the openings.

Door jambs and window frames are in good condition. They primarily need cleaning and repainting to recall their original appearance. Any loose pieces of trim should be renailed. If the original nails cannot be reused, new nails which resemble the original should be used.

Missing door trim in the entrance/stair hall (see figure 54) should be reconstructed by the reproduction of the original door trim.

The baseboard of the house is composed of three parts;the flat board, base cap and base shoe (see figure 55). It is a wide baseboard proportional to the high ceiling height of the rooms. This detail carries around the house. Baseboards are important as a structural member because they secured plank walls in place. Baseboards are in good condition. Wherever some part of the baseboard is missing, it should be replaced by the new reproduction piece of wood which matches the style, size and material of the original baseboards.

Fig. 53. Window and door trim

The baseboards in the dining room are new. The original may have been removed when the wall was refinished with the plaster boards. Baseboards in all rooms on the first floor are painted. Paints on baseboards in the north-south wing and dining room, perhaps around 1970s. The original finish on the baseboards in the parlor, back parlor and dining room is believed to be varnish, as in the rooms upstairs. Only the baseboard in the kitchen may be painted in black. Baseboards in the pantry room are missing and should be reinstalled.

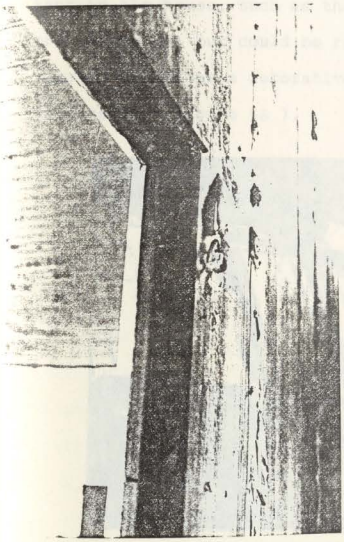


Fig. 54. Missing door trim in the entrance hall

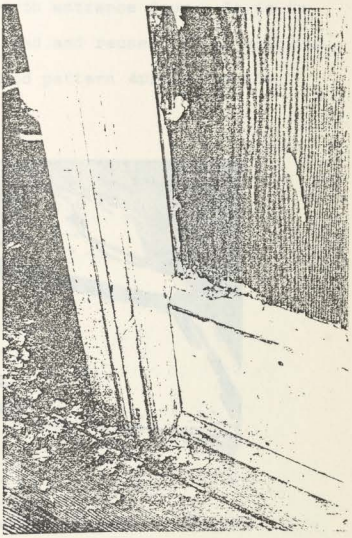


Fig. 55. The baseboard of the house

Doors

Four panel doors constitute the majority of the door types in the house. Most doors, except the east entrance door, are in this traditional pattern of the four panel type. The east entrance door is glazed above in four panes. Front entrance doors doors have fixed-glass-panel overhead transoms. The transoms and the panes of the east entrance door could use the same restoring methods as the glass windows. All doors, except the east entrance door, were removed and the openings are presently covered with plastic sheets. Many of the removed doors are kept in the house, such as the north entrance door. It is in broken pieces, but could be repaired and reused at its original location. It has a decorative wood pattern applied to the surface (see figure 56).

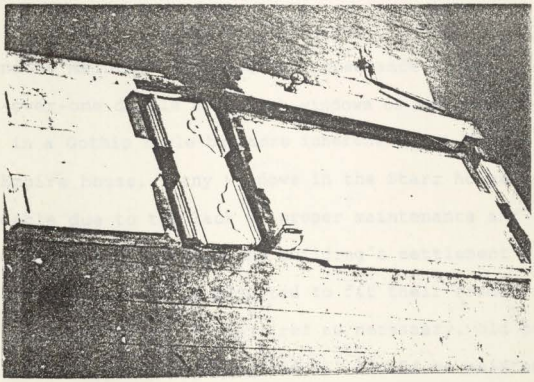


Fig. 56. The east entrance door

All existing doors should be cleaned and repainted. They need repairing to make them fit properly. Missing doors should be reproduced to look like the original doors and installed at needed locations.

When repainting the doors it is important to paint the bottoms of all exterior doors to seal the grain of the wood and prevent moisture from wicking up the end-grain of the wood.

Most exterior doors require pieces called thresholds to seal the space between the bottom of the door and the sill. Thresholds in the Starr house become worn and splintered after many years of service, therefore they need replacing. Doors should have weather-stripping installed to help reducing the heat loss.

Windows

Windows maintain the original appearance of the house. The one-over-one double hung sash windows of the house are unusual in a Gothic style but more inherent to an Italinate or Second Empire house. Many windows in the Starr house are unservicable due to the lack of proper maintenance and the building settlement. After the building's settlement is corrected, windows can be adjusted to fit their frames.

All windows should be repaired as necessary, old putty removed and new putty applied, and all should be painted. New elements should be made from material similar to that of the original, and all new elements should have the same profiles as those of the original elements.

Windows may lose heat through conduction and infiltration around the perimeter. To stop all the air infiltration around the windows, they may need caulking, weather-stripping, and reglazing. The wood frame storm window could be installed to prevent heat loss throgh the window (see figure 57).

Parts of windows that may need replacing or restoring are: sash, glaze, sash cord, and hardware. Repair as necessary. For more information on the care and painting of windows, refer to "Conservation of Historic Window Glass" by Richard O. Byrne. This article is in the APT Bulletin, Vol.XIII No 3 1981. The other reference could be Preservation Brief 9: The Repair of Historic Wooden Windows by John H. Myers available at the State Historic Preservation Office.

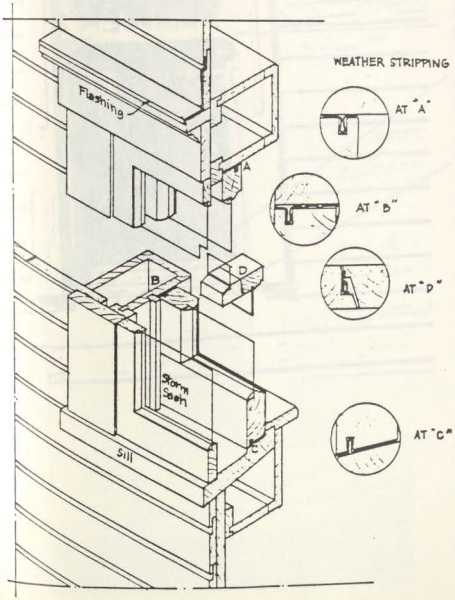


Fig. 57. Starr house's double-hung window, weatherstripped & storm window

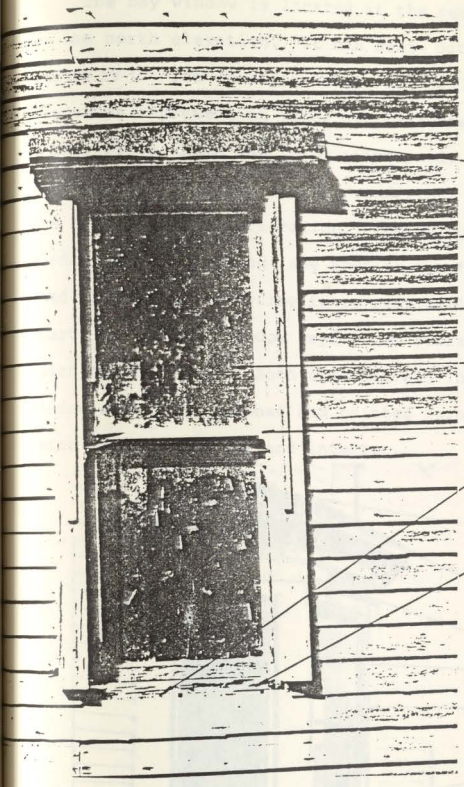


Fig. 57. The typical window of the Starr house

remove old, apply new flashing over the cap

caulking around perimeter

reglaze old window

install weather-stripping around edges of window sashes

add storm window

use epoxy treatment if rot is not serious and the member is being kept

treat exposed old wood with a wood preservative before new wood apply on top

replace rotten sill with new material matching the old construction, quality and appearance

Bay window

The bay window is located at the center of the front gable on the north elevation. It has semi- octagonal shape (see figure 59). Its location, shape and villa style brackets along the eaves represent an important characteristic of vernacular Gothic style which has to be maintained. Generally the bay window is structurely in fair condition, but it needs repairing due to exterior deterioration. The shingle roof over the bay window needs reroofing (see section about roof). The windows need fixing and adjusting to be servicable. Missing and cracking boards on the bay window need to be replaced with new boards to match the original. Both exterior and interior sides of the bay window should be cleaned and painted using the method of applying paint on the exterior and interior.

Fig. 59. Bay window

Stairs and stair balustrade

The Starr house staircase is a straight run staircase. It is located between the two walls of the parlor and the dining room. The steps are composed of 8½" risers (except the first step is 10" high) and 9" treads. Even though the riser is rather high, it is not considered as the minimum for a servicable staircase (a 9-inch tread width and an 8¼-inch riser height could be the minimum). The reason for a steep staircase was probably to keep the stair opening to a minimum space. Any change in the opening will generally require a major change in the floor plan and integrity of the house fabric. Decreasing the riser height of the stairs will increase the number of treads, and will intrude the area of the upstair hallway. It is advisable to leave the staircase intact (see figure 60).

The stair has finish stringers with bas cap moulding on both sides. The missing moulding should be replaced with new moulding matching the size and detail of the old.

Generally, the staircase is in good condition, but needs to be cleaned and applied wax finish on the surface. Installation of continuous stair handrail is recommended to provide safety for the occupants.

On the second floor top of the stair well, a stair balustrade with moulded railing and turned spindles is located. The railing is terminated at a newel post on one end and at the corner wall of the north bedroom on the other. The newel post was cut short at the bottom and fastened to the floor with angle fasteners. Although the size of the railing

is wider than the space available where it is connected at the north wall (see figure 61), it may be the original due to its style and craftmanship. Like door jamb and window trim, the stair railing could be ready made from the local mill and was installed after the wall structure was finished.

The stair balustrade should be cleaned and varnish applied to retain its original appearance. It is recommended that a drift pin be inserted in the middle of the newel post connecting it to the floor and to secure it to the floor joist if possible. The former angle fasteners should, therefore, be removed.

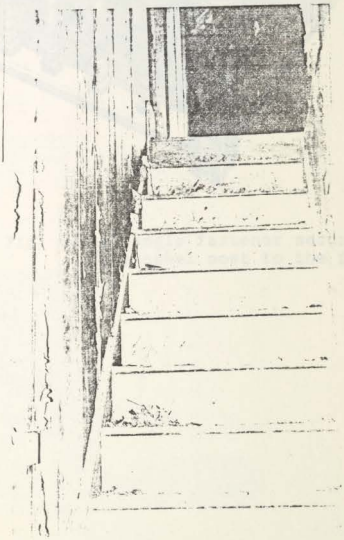
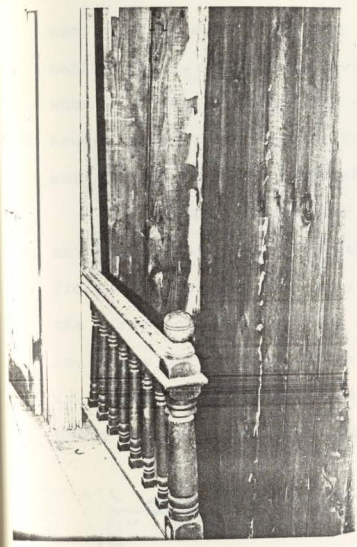


Fig. 60. The straight run staircase of the Starr house.



g. 61. The stair balustrade of the Starr house

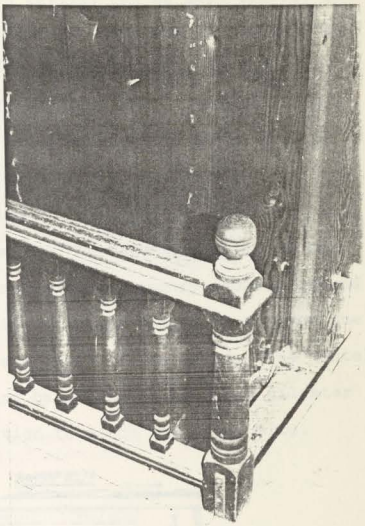


Fig. 62. An angle fastener secures the newel post to the floor

Fireplace mantels

The influence of the Greek revival can be seen clearly in many fireplace mantels where pilasters were used to support the mantelpieces. The Greek revival influence declines its rule when it comes to farmhouses of later periods. Mantels in farmhouses are normally simple in pilaster detail, but they still enrich the character and craftmanship of the interior.

The fireplace mantel in the dining room of the Starr house maintains its original appearance. The wood mantel faces the fireplace, leaving only a narrow edge of masonry showing around the fireplace opening. The pilasters are rather simple but the mouldings on the mantelpiece are carefully detailed. The mantel is in fair condition. A missing baseboard at the left pilaster needs replacing with reproduction to match the other side.

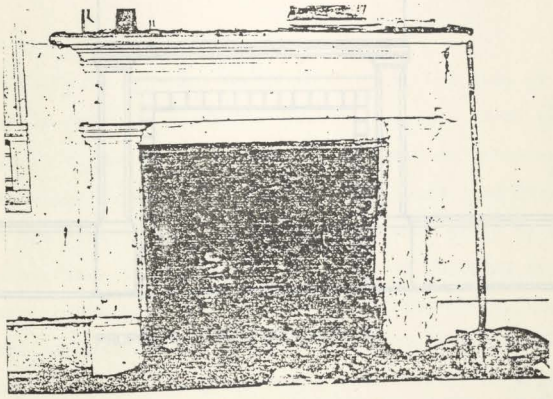


Fig. 63. Dining room fireplace and mantel

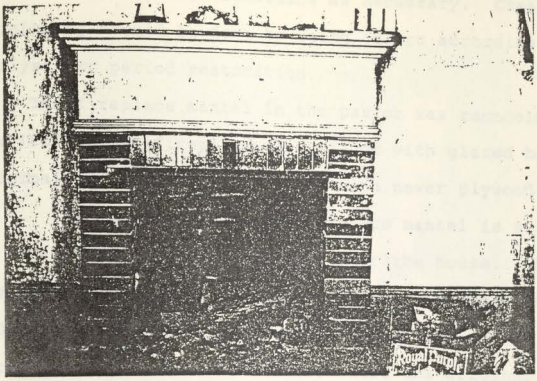


Fig. 64. Parlor room fireplace and mantel

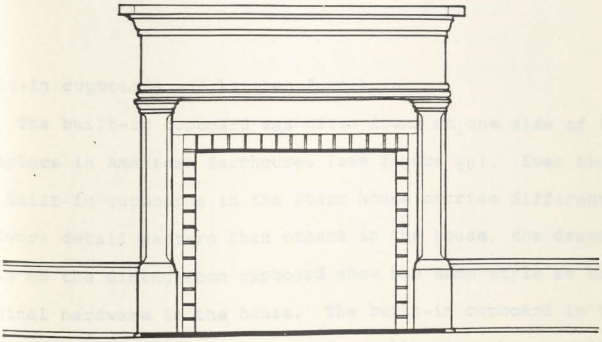


Fig. 65. A suggestive design for parlor mantel

Loose boards may need renailing as necessary. Cleaning and repainting should be done by using colors according to paint analysis or period restoration.

The fireplace mantel in the parlor was remodeled around the 1950s. The fireplace was refaced with glazed bricks. The original mantelpiece was covered with newer plywood (see figure 64). The appearance of the fireplace mantel is significant to the historic interior integrity of the house. The mantel in the parlor should be refinished. Glazed bricks should be removed and replaced by wood pilasters in compatible design to the significant period of the house, since the original detail is not available. The new plywood should be removed so that the old may be examined. If the old one is usable, it should be restored and used. A suggestive design for parlor mantel is shown in figure 65.

Built-in cupboards and kitchen furniture

The built-in cupboard was often found on one side of the fireplace in American farmhouses (see figure 66). Even though the built-in cupboards in the Starr house carries different woodwork detail pattern than others in the house, the drawer pulls on the dining room cupboard show the same style as the original hardware in the house. The built-in cupboard in the dining room might have been used for collecting china, while the one in the kitchen was for keeping food since it has screen panal doors to ventilate odors from the cupboard (see figure 67).

Fig. 66. ca.1880 kitchen, Indiana
The painting documents the persistence of architectural style as eastern settlers moved west. The built-in cupboard is shown on one side of the fireplace.

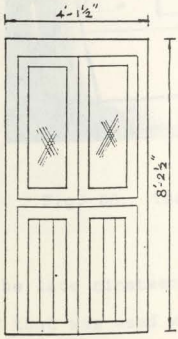


Fig. 67. Built-in cupboard in the kitchen

Along the east was in the kitchen, the kitchen counter, sink and china cabinets are located. According to their appearance, they were built around the 1950s.

For rehabilitating the house, it is recommended to keep and repair the built-in cupboard in the dining room because it is part ot the historic interior character (see figure 68). The cupboard doors and shelves should be repaired to regain the cupboard's use. New panel glass doors with the compatible design to the original design should replace the broken ones.

Fig. 68. The built-in cupboard in the dining room

In the late nineteenth century, a kitchen furniture and appliance that was used widely was the iron stove (see figure 69). An iron woodstove has been placed in the Starr house's kitchen

for many years. The existing woodstove may not be the one used by the Starrs, but the similar aspect has been maintained. The present owner of the Starr house prefers to keep the woodstove in the kitchen. The location of the woodstove will be in back of the dining room fireplace so that the smoke pipe of the stove can be connected to it.

The new kitchen counter, cabinets, sink, dishwasher and refrigerator need to be put in the kitchen for present day convenience. Therefore, the old cupboard, counter and cabinets may need to be removed to allow room for the new kitchen arrangement.

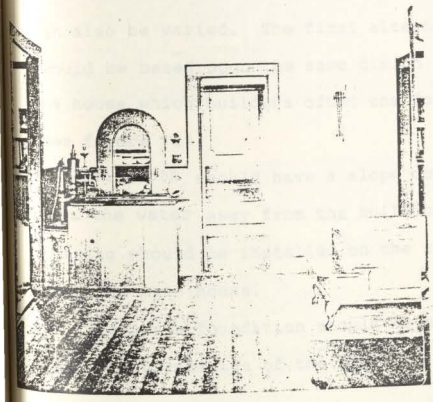


Fig. 69.

ca. 1875,kitchen in a model house, Vermount.

Kitchen with all the modern convenience of the 1870s; the woodstove is seen on right hand side.

Porches

Front porch

To maintain the historical appearance and function of the house, the missing front porch needs to be reconstructed. There is no photograph available that shows what the original front porch looks like. But the stain profile on the wall is used to trace the character of the porch.

According to the taste of the period and the stain profile (see figure 70), the front porch should have turned porch posts and a sloping floor down to the north. The character of the post may be varied. Alternatives in porch design could be made from examples of house in the same style,, period and area (see figure 71 - 73).

The character of the balcony balustrade on the second floor can also be varied. The first alternative for consideration should be based upon the same disign of the stair balustrade in the house which builders often use for the interior and exterior (see figure 74).

The porch should have a slope down to the north so as to drain the water away from the building (see figure 75). Flashing should be installed on the second floor where the floor joins the main house.

The porch foundation should be brick pier supports to match the foundation of the house.

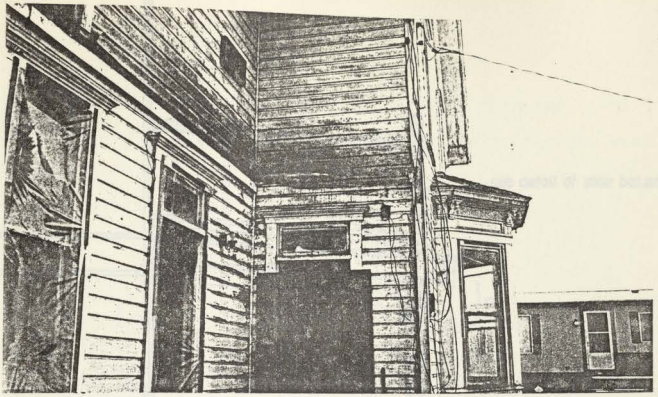
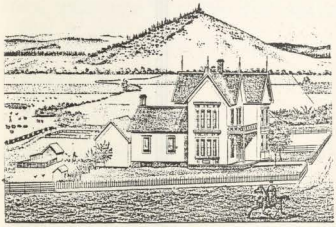
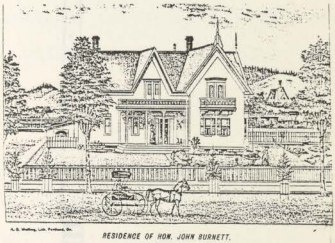


Fig. 70. The stain profile on the wall indicates the front porch's character



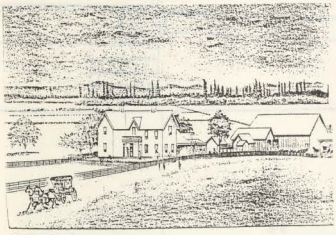
FARM RESIDENCE OF J. W. WRITSMAN.

Fig. 71.



RESIDENCE OF HON. JOHN BURNETT.

Fig. 72.



FARM RESIDENCE OF CALEB DAVIS.

Fig. 73.

Fig. 71-73. Houses in Benton County

Fig. 74 The stair balustrade

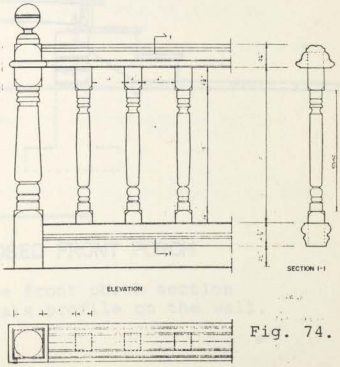
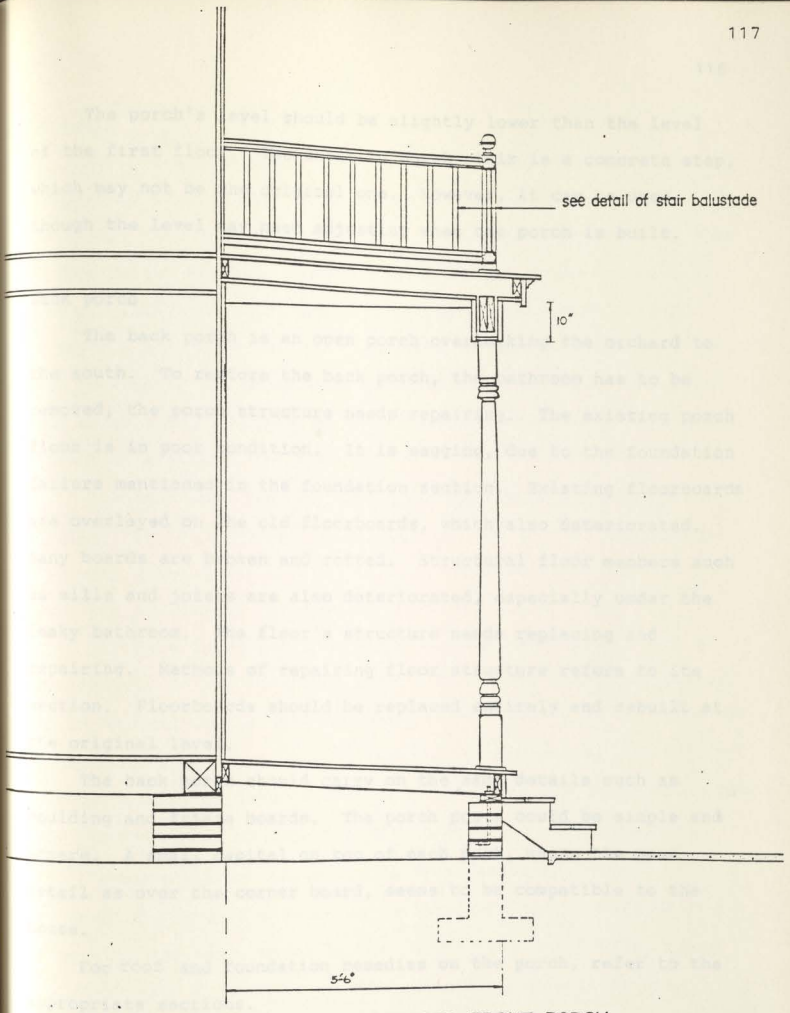


Fig. 74.



SECTION AT PROPOSED FRONT PORCH

Fig. 75. A suggestive of the front porch section is based on the stain profile on the wall.

The porch's level should be slightly lower than the level of the first floor. The existing porch stair is a concrete step, which may not be the original one. However, it can be used, though the level may need adjusting when the porch is built.

Back porch

The back porch is an open porch overlooking the orchard to the south. To restore the back porch, the bathroom has to be removed, the porch structure needs repairing. The existing porch floor is in poor condition. It is sagging, due to the foundation failure mentioned in the foundation section. Existing floorboards are overlayed on the old floorboards, which also deteriorated. Many boards are broken and rotted. Structural floor members such as sills and joists are also deteriorated, especially under the leaky bathroom. The floor's structure needs replacing and repairing. Methods of repairing floor structure refers to its section. Floorboards should be replaced entirely and rebuilt at the original level.

The back porch should carry on the same details such as moulding and frieze boards. The porch posts could be simple and square. A small capital on top of each post, using the same detail as over the corner board, seems to be compatible to the house.

For roof and foundation remedies on the porch, refer to the appropriate sections.

Hardware

Much of the hardware that is found in the house is fragmented or missing. Hardware in the house is dated from 1884 to 1910. Most of the hardware was manufactured in the east coast of the United States. Hardware found in the house are door hinges, locks and trim, sash lifts, sash locks, sash pulleys, a keyhole and drawer pulls. According to hardware characteristic and locations, the house once had a quality hardware throughout the house. The hardware is decorative and reflects the taste of Victorian architectural hardware.

Illustrations from an 1895 Montgomery Ward's Hardware Catalog, an 1884 Thompson & Co. Catalog and an 1896 Builder's Hardware Catalog can be used to find hardware or samples of hardware similar to hardware of the Starr house.

The cast loose pin butt was a hinge type on most doors in the house. It was made from iron. This hinge has three paired holes screwed to the door (see figure 76). This type of hinge was sold in either plain iron or japanned (black enamel finish) in approximately the late 1890s. Many hinges in the Starr house are now found painted on top, yet they originally were japanned.

Locks and trim remain at the front entrance doors. Fragmented pieces are found at parlor doors and upstair doors. They have the same design as the Sargent locks and trim, dated ca. 1910 (see figure 77). Locks and trim in the house are cast iron rose and escutcheons combination. No door knob remains in the house, but they could be either ebony or iron. A keyhole

of similar pattern is found on the removed north entrance door (which is kept in the back parlor room -see figure 79).

Window hardware is consistant on every window. It is plain cast iron. The sash lift is a hook type and ornate in design. The same sash lift was advertised by Thompson & Co. of Portland in an 1884 catalog (see figure 82).

The steel sash pulley is rather plain compared to other hardware in the house. This design was common in the late 1890s. It was called the "common sense" style in the 1896 Builder's Hardware Catalog. A sash pulley on the second floor helps when estimating the date of the house. It has two patient dates engraves on it: Feb.10,1874 and Sept.27,1887 (see figure 80).

Other hardware include the sash lifts and drawer pulls, they have similar period design, but close illustrations could not be found in those hardware catalogs.

Much hardware is found in poor condition and is not servicable. Reproduction may be needed to replace missing or broken hardware. The reproduction hardware is available from a manufacturer or dealer such as: Baldwin Hardware Manufacturing Corp. P.O. Box 82, Reading, PA 19603, or Cirecast Inc., 360 7th St., San Francisco, CA 94103.

However, hardware that is presently servicable or can be usd after fixing should be kept because it is a part of the historic integrity of the house.

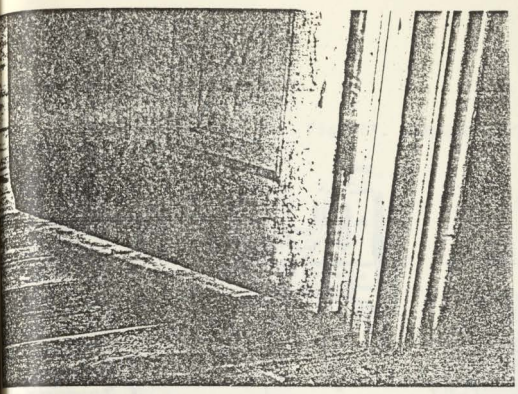
Hardware that is currently operating satisfactorily should not be removed. When removing unsatisfactory hardware, it is important to work slowly and carefully to avoid damage to both

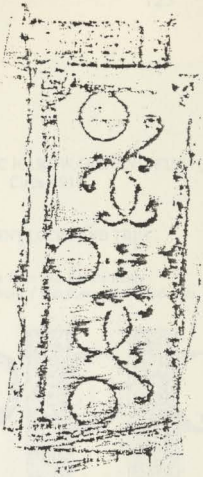
the hardware and the article that the hardware is mounted to. If the hardware has been painted over, begin the removal be cutting around the edges of the piece of hardware down through all of the paint layers. This will prevent the breaking off of large areas of paint when the hardware is removed. Use caution to avoid gouging the hardware and wood behind it. Be certain to use a screwdriver that fits properly in the slots of the screws being removed. It may be necessary to grind a screwdriver tip to fit specific screws. All hardware should be labeled to make sure that it is returned to its original location. Positions of screws should be marked as they are removed to insure that they are reinstalled in tha same holes that they were removed from.[23]

If new security or other hardware is installed as part of the rehabilitation, care should be taken to select a style that is sympathetic to the original hardware. Reproduction of hardware is recommended as mentioned earlier.

Figure 76-83 illustrate the hardware of the Starr house.

(note* The content of this topic is mainly from the paper on "Hardware of the Reeves-Starr House," by Janine McFarland for 1985 Preservation and Restoration Technology Class. It has been verified, edited and added more information by the author. Most photographs are also with the courtesy of Janine McFarland.





CAST LOOSE PIN BUTTS.

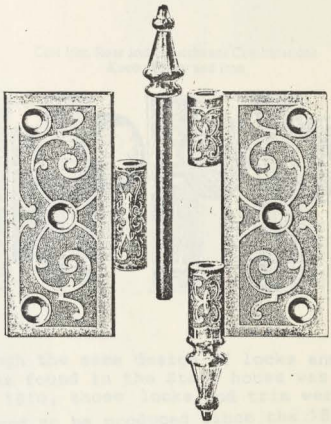


Fig. 76. The door hinge of the Starr house.
The similar design is found in the Builder's Hardware Catalog.

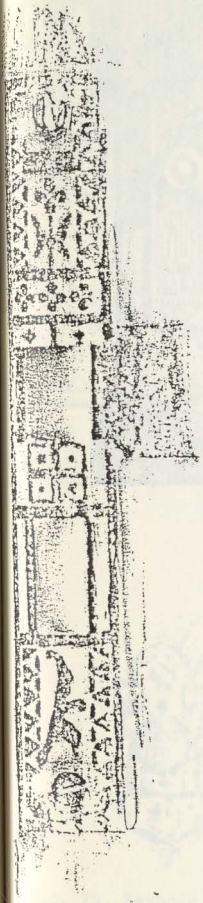
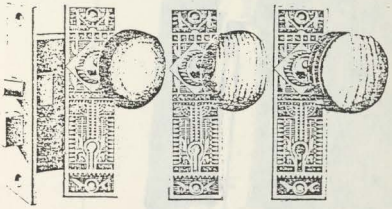


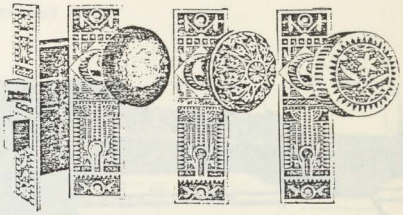
Fig. 77. SARGENT ARTISTIC HARDWARE AND FINE LOCKS
Circa 1910

SARGENT LOCKS AND TRIM

Cast Bronze Rose and Escutcheons
Knob Variations: Ebony / Wood, round / Wood, box



Cast Iron Rose and Escutcheons Combinations
Knob: Ebony and Iron



note* Although the same design of locks and trim as found in the Starr house was date circa 1910, those locks and trim were believed to be produced since the 1890s.

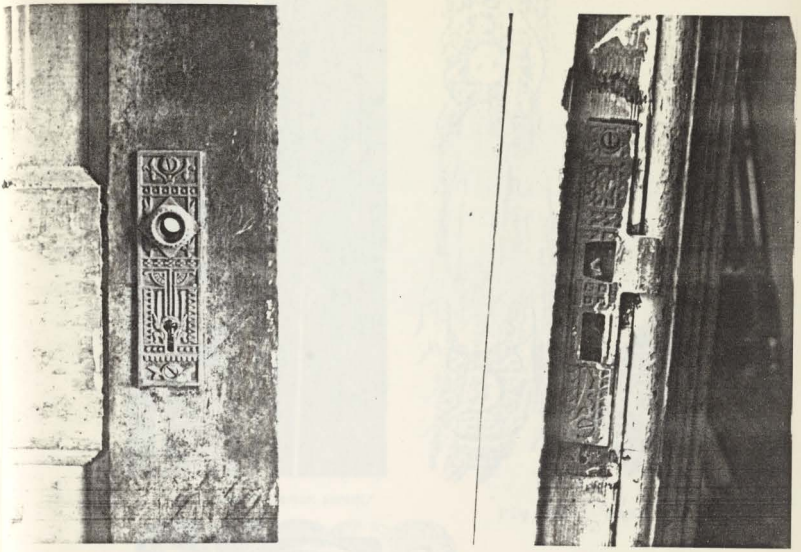
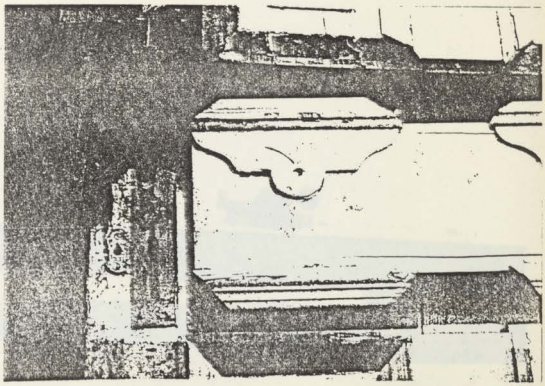
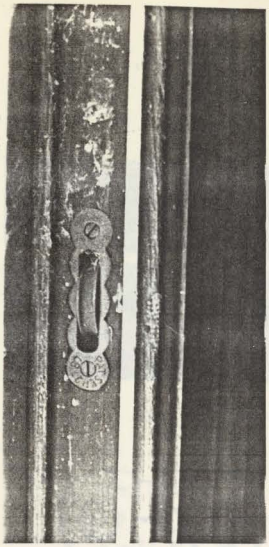


Fig. 78. Lock and trim

Fig. 79. Keyhole c the north entrance door





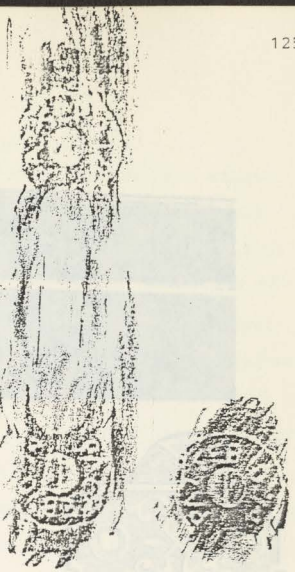


Fig. 80. Sash pulley

THE "COMMON SENSE."

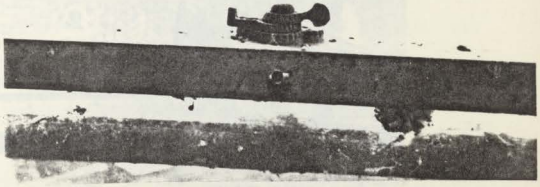
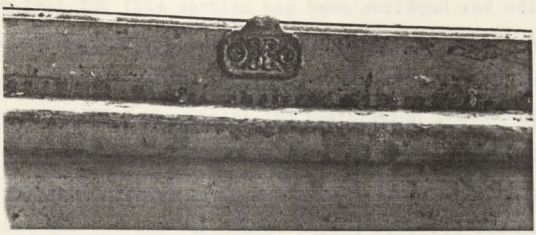


Fig. 81. Sash lock



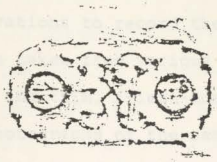
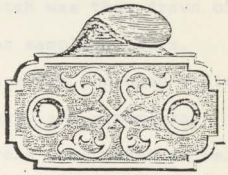


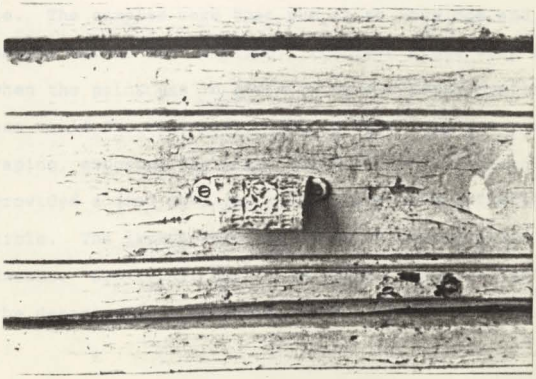
Fig. 82. Sash lift



Full Size Cut of Nos. 241, 341, 441 and 841. Patented.

	Per dozen.
No. 241, Tuscan Bronzed, with Screws,	$0 50
No. 441, Berlin Bronzed, " "	55
No. 341, English Bronzed, " "	66
No. 841, Bronze Metal, " "	2 50

Fig. 83. Drawer pull



Paint and Wallpaper

The text for this section has been abridged and edited from "Paint Analysis of the Reeves-Starr House", which was prepared by Sally Donovan and the author, for the School of Architecture 1985 Preservation and Restoration Technology class.

The process and methods of the analysis are as follow:

On site, the first step in analyzing the paint fabric was to examine the overall structure, paying specific attention to possible good sampling locations. A sketch was then drawn of all the elevations to record the exterior sample numbers. Samples were taken from various surfaces which included siding, window sash and trim, frieze boards, doors, and ornamental details. Photographs of the sampling areas were taken as well. Three methods were used in sampling; extracting, cratering, and scraping, Extracting was found to be the most useful method of obtaining samples and in analysis. This method involved removing a small portion of the paint with an x-acto knife, including the substrate. The samples were then put in an envelope and labeled with a sample number and location. Problems arose with this mathod when the paint was in state of severe deterioration and the layers would fracture before obtaining a complete sample.

Scraping, exposing the paint layer-by-layer with an x-acto knife, provided a good sampling alternative when extracting was not possible. The layers were then visully observed and recorded in fieldnotes. Cratering, the third method employed, generally due to the deterioration of paint layer. In this method a

craterlike cavity is cut and by alternating sanding and oil treatments the paint layers are exposed. These three methods were employed on the interior paint as well, recording each sample location on a sketch of the floor plan. Generally photographs were taken of all sample locations with a kodak color chart included in the photograph, which provides a key for further color analysis. Wallpaper samples were extracted from the downstairs hall and living room and all of bedrooms upstair, including the hall. The room location and layer numbers were then recorded on each piece.

The second phase of the investigation included a microscope analysis of the extracted samples. This analysis involves studying each sample under a binocular zoom microscope to determine the substrate and the stratigraphy of the paint layers. This data was then matched to the corresponding Munsell color, a universally known color coding system which is used for documenting color for further record. The color matching system employed was used to document the existing color, not to determine the true original color. No attempt was made at this stage in the analysis to account for fading or bleaching by weather or any chemical changes that might occur with the paint materials themselves.

The study of the interior and exterior finishes help determine the evolution of the building construction and what the original finishes might have been. From the exterior samples certain conclusions may be drawn. The samples taken from siding, corner boards, soffit, frieze boards, and window and door trim produced

the same primary color the substrate; medium grey. The sash and sills on all windows including the bay window yielded a deep burnt red color next to the substrate. The ornamentation and panels above the bay window yielded the same medium grey as the rest of the exterior samples. The first layer of the eastern facing entry door was a biege color then a second layer was brunt red. This base layer might indicate a primer or a possible base coat for false graining. The only part of the back porch system which appears to be original is the pantry. Paint samples from the siding and the windows coincide with the rest of the exterior samples.

It is evident from the interior samples taken from the windows, doors, and baseboards that the original finish of the interior wood work was a varnish. The upstair living chamber and kitchen chamber are the only two rooms which still have the original varnish exposed, The other two bedroom chambers have been painted twice. Various layers of wallpaper cover the upstairs chambers and hall. The downstair hall and living room walls were also covered with wallpaper, but it is obscured by panels of plaster board which have been painted. The living room and front parlor, including the mantels have the most paint layer build up. The living room mantel has a medium grey first layer with varnish underneath. The parlor mantel possibly could have been marbelized because of the thin,whitish layer after the varnish.

For detailed information of paint,see appendix D.

Most interior walls of the house was originally covered with the wallpaper. Wallpaper on the second floor has been stripped off exposing the plank wall with only traces of the original covering left. Wallpaper on the first floor, except in the kitchen and pantry, has been covered with plaster boards of the 1960s. A portion of the wallpaper of the dining room wall has been stripped off to investigate during the this project. It reveals the character of victorian wallpaper like the traces found on the second floor; it is belived that the interior walls were once covered with wallpaper throughout the house. The maximum number of wallpaper layers found are three. The first layer was placed on sheet linen nailed to the wall. It employs the floral patterns of wallpaper with floral bordens. The other layers also has floral patterns but has a geometrical border.

However, this investigation is only a preliminary study of the interior character if the house; only the wallpaper in the dining room has been investigated. The wallpaper in the dining room has not yet been verified the date or analyzed for the date. This should be done along with the further study of interior architecture of the house in the future.

Utilities

Electrical system

The electricity probably came to the house after the late 1910s and has serviced it until the late 1960s, when the house was neglected. From the existing electrical equipment, the house was rewired the electrical circuit of 240 volts. It was am overhead service, cables ran from the street to the house where the service head, entrance wires and the meter were installed on the north wall of the front gable. The service panel is still located on the north wall inside the entrance wall (see figure 83). Circuit wires in the house were installed under the floors; holes were drilled through the joists for running the wires. The locations of light fixtures are typically in the middle of the room ceilings. Most light fixtures and switches were removed. Spectacle outlets are few and found only on the first floor, they are located in the wall where closets are in the back.

At the present, the electrical system of the house is turned off. It is in a severe state of deterioration and is dangerous. It should be replaced entirely. All wire and electrical fixtures should be designed to place in the suitable locations. The electrical system then needs to be rewired to meet the future needs and modern standards.

Service entrance capacity (Amps.) should be calculated from watts used for electrical demands, such as lighting and appliances. The service entry panel and meter should be located

at the back porch so that they will not intrude the visual appearance of the house, and they will easily service the nearby garage and dairy building.

There are two main locations for running electrical wiring- at the ceilings and at the walls. Ceiling light fixtures can have wires run over them; through drill holes of the floor or ceiling joists. There are existing drill holes that can be used as needed. Try to avoid drilling new holes, because they will destroy the historic fabric and weaken the structural members.

Installing electrical wiring at the walls creates a difficult problem due to the single wall construction of the planks. There is no space behind the walls to hide electrical conduit and service boxes, switch boxes and spectacle boxes. The closets behind some locations or the hollow wall along the staircase may be used to hide conduit and boxes. However, where to install the electrical systm at other places on the wall should be considered when installing the insulation. Fiber insulation board (hardboard) of 3/4 in. could be placed on the walls. Its thickness should provide enough space to hide the conduit, but the service boxes will still be visible. Those service boxes that are mounted to the wall surface should be considered. They cna be the reproduction of antique style electrical boxes supplied by reproduction manufacturers such as Victorian Reproduction Enterprises, Inc. 1601 Park Ave. South, Minneapolis, MN 55404-16013 and Rejuvenation House Parts, 4543 N. Albina Ave., Portland, OR 97217. Otherwise, electrical boxes could have a special new design, probably chosen by

an interior architect, to make it compatible with the interior character of the house.

The addition of another layer of wall(double wall) is not recommended, especially where window and door trim is located, because doubling the thickness of the wall will provide space to hide boxes, but it will destroy the distinctive interior character of the window and door trim- projecting out from the walls.

If a telephone line is installed, the same considerations as used with the electrical system should be used.

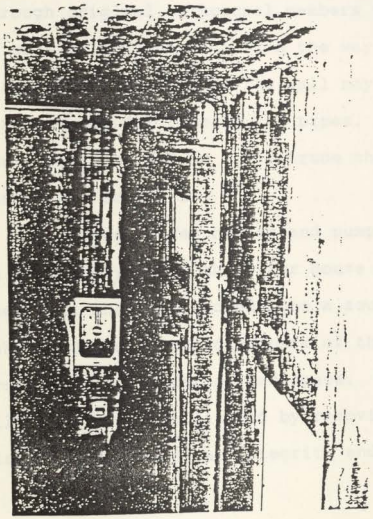


Fig. 84. The service panel is located on the wall in the entrance wall.

Plumbing system

The present plumbing system is deteriorated. The system should be relocated according to a proposed plan for rehabilitation. A new modern plumbing system should be meet the standards of its system. Because the house is in the remote area, the sewage system is not provided by the city. A septic tank will need to be used. The present septic tank for the trailer, which is located southwest to the house, should be investigated and may possibly be used. During the installation of the plumbing system, holes may be drilled through original structural members to run pipes. This should be carefully planned to find the way to drill holes only as necessary. Doubling of the wall may be needed to provide hidden space for running the pipes. This should be done at the locations that do not intrude the interior character of the window and door trim.

A present water heater and pump for the trailer is located in the back yard of the Starr house and is covered by a small shed. It should be moved into a south room of the new rehabilitated outbuilding back of the house. This room will provide proper location and space. The back yard landscape will also be rehabilitated by removing the shed so as not to disturb the historical integrity and appearance of the house.

Heating system

A central heating system has never been installed in the Starr house. Heating was provided historically by fireplaces and woodstoves. A modern central heating system should be installed to provide a constant level of temperature and humidity. It will benefit both the building and the occupants.

The forced warm air systems are popular and considered practicable to this type of project. Because air ducts could be installed in the crawl space underneath the house and will service the second floor through ducts running through the closets. Registers could be installed at the floor so they will not be noticable. These will not intrude the interior character of the house.

The furnace of a heating system is normally located in the basement. However, it can be located at any hidden space in the Starr house such as under the staircase or in the closet. If the furnace is located underneath the house, a basement room specially for the furnace may need to be constructed and may have a trap door open from the first floor for maintenance. An electric furnace may also be a good choice since the space in the Starr house is limited and electric furnaces have easy maintenance.

Ventilation

Condensation of moisture vapor can occur in the attic space during cold weather, while hot air can be trapped in the closed attic space, Moisture associated with dead air under the roof causes deterioration to the house's structural fabric. In the Starr house, moisture can ventilate through gaps between shingles. Proper ventilators may be considered to install to provide an adequate ventilation. They are normally visible and intrude the character of the eaves of the house. However, if ventilators will be used, they should be designed and placed sympathetically to the visual integrity of the house as much as possible. Since ventilators plugged to eaves may easily be noticable, a slot screen ventilator along the soffit could be a consideration. At the roof ridge, a ridge vent is also suggested if it can be done to have the appearance of a typical cap of horizontal two boards.

The crawl space below the floor should be ventilated and protected from ground moisture by the use of soil cover. This includes such barrier materials as plastic films and asphalt-laminated paper. The protection will minimize the effect of ground moisture in the wood framing member and reduce the required ventilating area. Even though, it seems that the Starr house has enough ventilating area under the house, the use of a ground cover is still recommended.

Vapor Barrier, Insulation and Weatherization

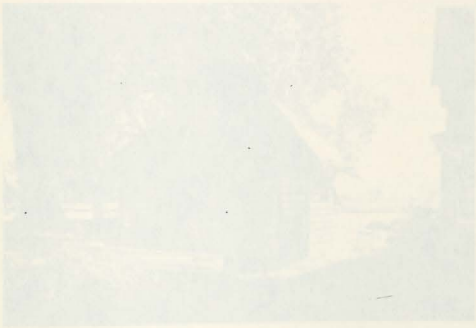
Most building materials are permeable to water vapor. This occurs because considerable water vapor is generated in a house from cooking, dishwashing, laundering, and other sources. In cold climates during cold weather, this vapor may pass through wall and ceiling materials and condense in the wall and attic space. Subsequently, in severe cases, it may damage the exterior paint and interior finish, or even result in decayed structural members. For protection, a material highly resistive to vapor tranmission, called a vapor barrier, should be used on the warm side of a wall or below the insulation in an attic space.

Vapor barriers and insulation should be installed in the Starr house to provide comfort, reduce damage and decrease heating expenses. Most blanket or solid board insulation which can use for insulating the house are normally provided a vapor barrier on one side.

The house has never been insulated. Insulation should be installed in and under floor, and in the ceilings. Most of the heat loss in a house occurs through the ceilings and roof, so insulating these areas will reduce the loss and add considerably to the comfort of the house.

The plank walls of the house creates problems due to the gap between planks which allow cold air to get in and there is no wall cavity to put insulation into. The thinness of the walls and the depth of the window and door trim combine to form one of the significant aspects of the interior of the

house. To preserve this, there are two alternatives. First, the gaps between the planks could be filled in with insulating material. This will retain the absolute characteristic of the original interior appearance, but much heating energy may be consumed during cold weather. Second, 3/4 in. fiber insulation board (hardboard) could be placed on top of the plank walls, This may reduce the depth of window and door trim, but it should provide enough insulation to the house and also provide a finish surface for the interior wallpaper. The problem with installing the hardboards is in taking the baseboards off before installing insulation, Baseboards are a structural member securing the plank walls. They have to be reset if this kind of insulation is installed. Special care of planks should be understood before the baseboards are removed.



Outbuildings

Dairy building

The dairy building is the only other historic building remaining on the farm. It is rectangular in plan with overall dimensions of 16'-3½" by 10'-2". The building is a balloon frame construction. The rectangular plan of teh building is divided into two rooms by a wall in the middle. Both rooms have stacked shelves on their north and south sides. There is a door leading to each room from a concrete sidewalk to the west. The room to the north has a small window facing east. The other room has no window.

The building has a hip roof with a handsome cupola of Queen Anne taste at the middle of the roof peak. The exterior siding is 6½" shiplap (see figure 85).

Fig. 85. The dairy building

Even though the dairy building carries some details similar to the main house such as eave and frieze board details, the design and construction show that the building was built in the later period:- in the early 1900s.

The dairy building is a significant building on its own as a utilitarian historic building, as well as a member of buildings on the farm. It is a part of the visual and historic integrity. The rehabilitation should be carried on to the dairy building as well.

Since the house has no storage room in it, the north room of the dairy building could serve as a storage room. The other room is proposed to be a mechanical room for the water heater and pump.

The serious problem of the building is the roof. Shingles were removed and the roof is covered with a plastic sheet while waiting for repair. Shingles should be reinstalled as well as missing roof structural members. Rotten structural members should be repaired by splicing new wood to match the old. The cupola should be fixed in its proper position. Wood shingles are recommended for roof covering to match the house and recover historic appearance.

Loose siding boards should be renailed. Deteriorated, missing and large cracked board should be replaced by new boards that match the old. Missing corner boards and door trim should be reinstalled by new boards and trim with compatible design and proportion. Simple panel doors can be used to replace the missing ones. The existing window is in good condition, but may need to be properly adjusted as needed.

The evidence at the bottom of the west wall shows an inactive insect infestation. Bottom edges should be treated by insecticide as needed and attacked wood must be removed and replaced by new material to match.

The concrete floor and sidewalk could be refinished by overlaying as needed.

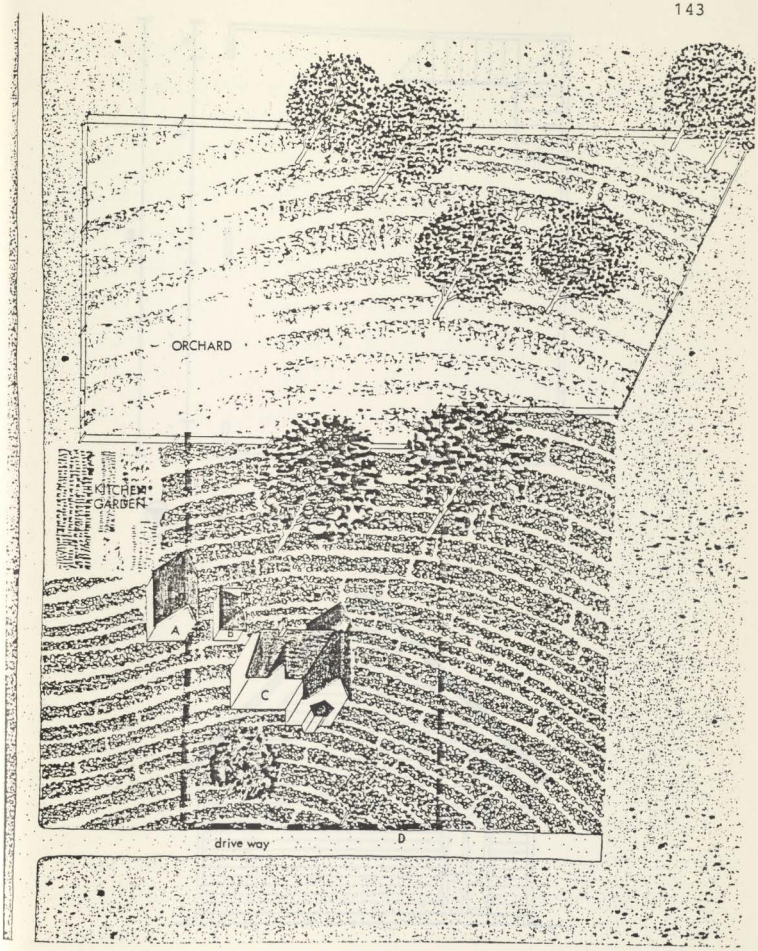
Garage

The garage is a proposed outbuilding to the Starr house project. Very often a garage is added directly to a historic house. This garage addition can destroy the historic integrity of the house. The Starr property has vast land. There used to be a group of buildings on the property. Each served an individual function, and were scattered in the core area. The garage should then be a separate building to the house.

Because the significance of the Starr property is not only of the house but also of the relation of the house to the landscape, placement of a new building will effect the historic integrity of the landscape. The location of the garage should be carefully considered. It should not be too close to the house because it can destroy the visual aesthetic of the house. It should not be too far from the house because it wouldn't be convenient.

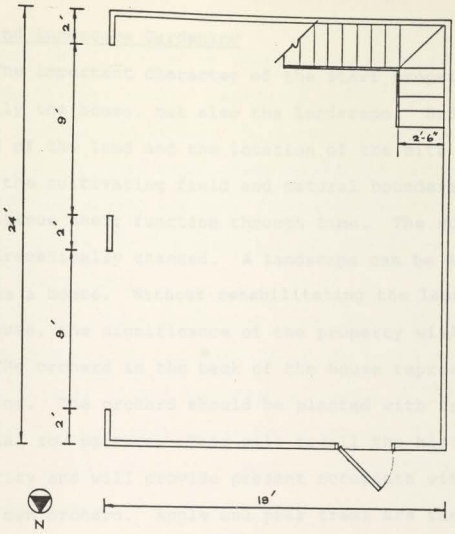
Therefore, the recommended location of the garage is on the southeast of the house, where it can be accessed from the driveway (see figure 86). By placing the garage at this location, it will retain the visual perspective of the historic building group; the house and the dairy building. Also, the garage will be integrated in the group arrangement of the farm which former buildings (which have been torn down) were located in the core area.

The appearance of the garage should not be predominant to the house so that the house can be recognized as an important element on the landscape (see figure 87).



A. proposed garage
B. outbuilding
C. Starr house
D. proposed picket fence

Fig. 86. A suggestive location for the garage



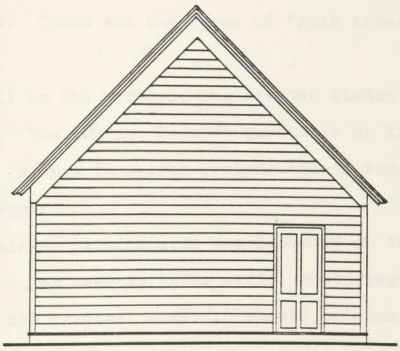


Fig. 87. A suggestive design for the garage.

Site and Landscape Gardening

The important character of the Starr property is due to not only the house, but also the landscape. Because of the nature of the land and the location of the site in the rural area, the cultivating field and natural boundaries haved tended to continue their function through time. The core area has been dramatically changed. A landscape can be deteriorated as well as a house. Without rehabilitating the landscape along with the house, the significance of the property will be decreased.

THe orchard in the back of the house represents a landscape function. The orchard should be planted with fruit trees in a diagonal row pattern, This will recall the historic landscape integrity and will provide present occupants with fruit from their own orchard. Apple and pear trees are the existing fruit trees and the ones that are seen in the 1936 and 1944 aerial photographs. These are the types of fruit trees suggested for replanting.

As well as the orchard, the kitchen garden should be maintained. The existing kitchen garden is on the southeast of the house. Plants in season include tomato,zucchini, squash and bell pepper.

The chicken raising area was probably on the west side of the house, as seen in 1940s aerial photographs. Though this may not be the original area, it should be considered for the future.

The landscape gardening in the front and back yards of the house should be considered as necessary. Flowering plants such

as roses and lilac can be planted in groups on the front yard or along the entrywalk. Manicured shrub adjacent to the house is not recommended because it is not compatible to a country house, and contrast with Gothic landscape gardening concepts. The backyard should not have scattered planting. A lawn would be appropriate for the back yard because it may be used for family activities.

A picket fence around the house is recommended. It will enhance the historic appearance of the house. It is a strong characteristic of the landscape elements of the late 19th century. A suggested picket fence design is based on the historic picket fence in a nearby location; about a mile from the Starr farm. This picket fence dated from the early 20th century remains from an old house which has been demolished. It is compatible to the style of the house. It is recommended because that existing fence is also in poor condition and will be lost without repair. If it is possible, the Starr house's owners should buy the old picket fence from that nearby farm and use it as a part of the rehabilitation. This will be a way to help maintaining a historical heritage (see figure 88).

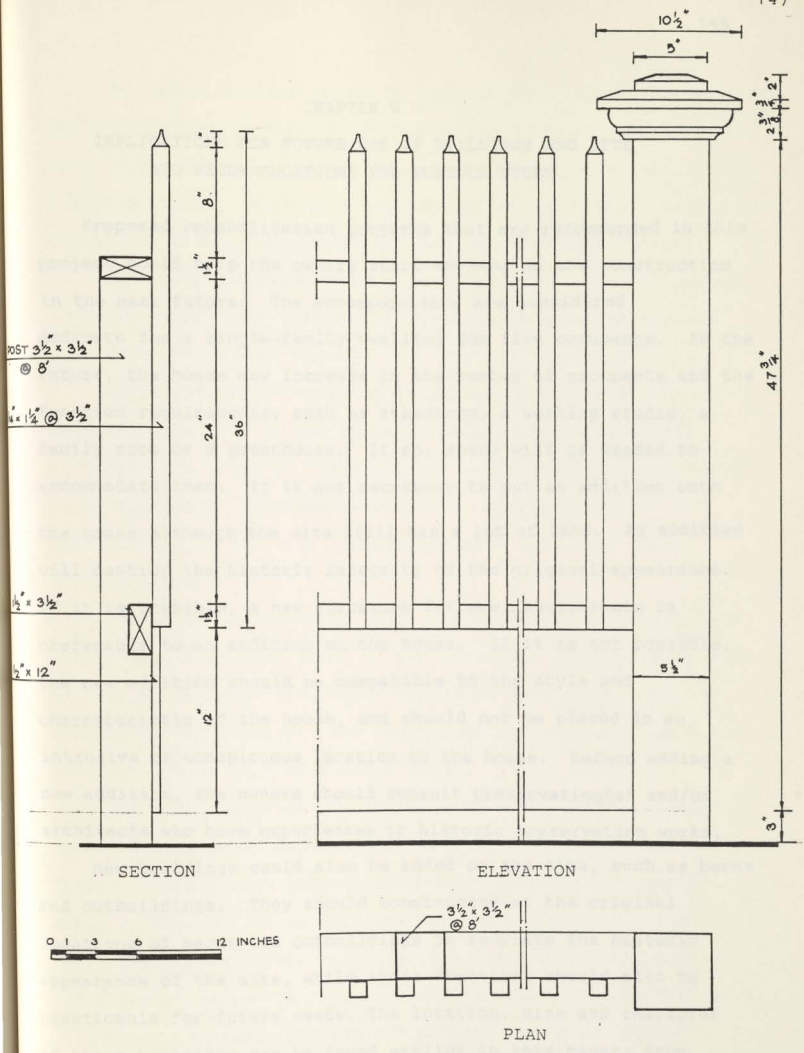


Fig. 88. The proposed picket fence

CHAPTER V

IMPLICATIONS FOR FUTURE USE OF BUILDINGS AND SITE AND RECOMMENDATIONS FOR FURTHER STUDY

Proposed rehabilitation projects that are recommended in this project could help the owners start working on the construction in the near future. The accommodations are considered moderate for a single-family dwelling for five occupants. In the future, the house may increase in the number of occupants and the function requirements, such as a bedroom, a working studio, a family room or a greenhouse. If so, space will be needed to accommodate them. It is not necessary to put an addition onto the house although the site still has a lot of land. An addition will destroy the historic integrity of the original appearance. If it is possible, a new structure for new requirements is preferable to an addition on the house. If it is not possible, the new addition should be compatible to the style and characteristic of the house, and should not be placed in an intrusive or conspicuous location to the house. Before adding a new addition, the owners should consult preservationist and/or architects who have experiences in historic preservation works.

New buildings could also be added on the site, such as barns and outbuildings. They should constructed at the original locations of barns and outbuildings to recreate the historic appearance of the site, while their functions should also be practicable for future needs. The location, size and character of those buildings can be found earlier in this paper; from aerial photographs and drawings.

The rehabilitation should be done as soon as possible in the near future to prevent further damage to the buildings and site. It should also be nominated for the National Register for Historic Places. This will help the owners with their finances as well as protect the property from inappropriate changes.

A preventive maintenance program should be carried out at regular intervals. This will prevent negligence and serious problems before them happen.

Additions to the house or landscape, and alterations in historic integrity of the house or site sould be subjected seriously. A study on these actions should be made before the works are done. Recommendations from architectural conservators or historic preservationists should be under consideration.

The study on the Starr house has been limited to the time available. A further study of the structure of the house, such as footing and roof structure, should be done along with the rehabilitating process. The rehabilitating process should be documented as a part of further study.

The mantelpiece in the parlor room needs further study to reveal its original appearance. Wallpaper in the dining room, parlor room and back parlor room needs recording and analysis. These studies of the mantelpiece and the wallpaper will give an appropriate consideration for rehabilitation and will provide the information on the historic interior character of the house.

Interior decoration was not part of the study project. It should be considered for future study. Light fixtures and furniture are important interior elements. The owners should be

The rehabilitation should be done as soon as possible in the near future to prevent further damage to the buildings and site. It should also be nominated for the National Register for Historic Places. This will help the owners with their finances as well as protect the property from inappropriate changes.

A preventive maintenance program should be carried out at regular intervals. This will prevent negligence and serious problems before them happen.

Additions to the house or landscape, and alterations in historic integrity of the house or site sould be subjected seriously. A study on these actions should be made before the works are done. Recommendations from architectural conservators or historic preservationists should be under consideration.

The study on the Starr house has been limited to the time available. A further study of the structure of the house, such as footing and roof structure, should be done along with the rehabilitating process. The rehabilitating process should be documented as a part of further study.

The mantelpiece in the parlor room needs further study to reveal its original appearance. Wallpaper in the dining room, parlor room and back parlor room needs recording and analysis. These studies of the mantelpiece and the wallpaper will give an appropriate consideration for rehabilitation and will provide the information on the historic interior character of the house.

Interior decoration was not part of the study project. It should be considered for future study. Light fixtures and furniture are important interior elements. The owners should be

informed as to what fixtures and furniture will most appropriate and enhance the historic interior integrity of the house. A good reference for the interior project refers to "Recreating the Historic Interior" (Nashville: American Association for State and Local History,1979), by William Seale.

During the project research , an successful attempt was made to find old photographs of the house. Photographs have been requested from the Starr family in Monroe, former occupants, and related historical sources such as historical museums and libraries. Old photographs of not only the house, but also other buildings on the farm, will provide correct information for future implications, such as rehabilitating landscape and constructing the barn. Photographs of the farm perhaps can be obtained from the Starr families in Corvallis and Bellfountain, or from neighbors in the Starr farm's area. Since it will be a time-consuming search, it was not feasible with in the scope of this project study.

An archaeological study should also be performed in the future. From the topographic feature of the farm, artifacts may be found-especially in the area along the creek. There is an archaeological study of prehistoric sites in Willamette Valley mapped at the Museum of Natural History, University of Oregon. This is a suggested starting place for doing archaeological research on the farm.

Appendix A

The National Register Criteria for Evaluation and Guidelines for Rehabilitation.

Even though the property is old enough, almost a hundred years, it may not be qualified for the National Register for Historic Places if the rehabilitation does not meet the standards and criteria for the National Register. The National Register criteria for evaluating and guidelines for rehabilitating historic places of the Secretary of Interior's should be kept in mind before the work is done to the house and property.

The National Register Critera for Evaluation are as follow:

The quality of significance in American history, architecture, archeology, engineering, and culture is present, in district, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important in prehistory or history.

The following guidelines are the Secretary of the Interior's Standards for Historic Preservation Projects, and apply to all treatment undertaken in historic properties listed in the National Register of Historic Places.

General Standards

1. Every reasonable effort shall be made to provide a compatible use for a property that requires minimal alteration of the building structure, or site and its environment, or to use a property for its originally intended purpose.

2. The distinguishing original qualities of character of a building, structure, or site and its environment shall not be destroyed. The removal of alteration of any historic material or distinctive architectural features should be avoided when possible.

3. All buildings, structures, and sites shall be recognized as products of their own time. Alteration which have no historical basis and which seek to create an earlier appearance shall be discouraged.

4. Changes which may have taken place in the course of time are evidence of the history and development of the building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.

5. Distinctive stylistic features or examples of skilled craftmanship which characterize a building, structure, or site, shall be treated with sensitivity.

6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historical, physical, or pictorial evidence rather than on conjectual designs or the avalibility of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sand-blasting and other cleaning methods that will damage the historic materials shall not be undertaken.

8. Every reasonable effort shall be made to protect and preserve archeological resources affected by, or adjacent to, any acquisition, protection, stabilization, preservation, rehabilitation, restoration, and reconstruction project.

Specific Standards for Rehabilitation

9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historic, architectural, or cultural material and such design is compatible with the size, scale, color, material, and character of the property, neighborhood, or environment.

10. Wherever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

The following guidelines are designed to help the owners in planning and carrying out the rehabilitation work.[24]

1. When replacing historic fabric with new material it is good practice to mark the new material with the date that the work was done. This provides a record of when the work was done, and will be helpful in future investigations.

2. Avoid the use of harsh chemicals and cleaners. These are harmful to user's health as well as to the building fabric. If it is necessary to use these, proper safety precautions must be exercised.

3. When cleaning historic fabric, always start with the mildest cleanser and work up. Always do a small test patch in an inconspicuous area before using any cleaning method on a large area.

4. Be certain that any salvaged lumber that is used as replacement material is sound, dry, clean, and free of insects and fungus.

5. Differential settlement and some degree of permanent deflection and dislocation of elements is to be expected in historic structures. Use care when attempting to straighten and level. It is possible to introduce forces into building that could result in futher damage.

6. Loss of historic fabric can be kept to a minimum through careful planning and workmanship.

7. Make sure that any work that is done is reversible. Don't undertake any work that can't be undone in the future. e.g. Don't apply a treatment to brickwork, such as injection of silicon or other material, that is permanent and can't be removed.

8. Leave evidence of the evolution of the house such as patches, paintlines, wallpaper patches, etc. It can be left in place and covered over with new materials. It is important to preserve these for future investigation purposes. Methods of investigation and analysis are constantly improving, and future investigators will find this information invaluable.

9. Be certain to remedy the cause of the problem as well as the problem itself. e.g. Don't fix the floor structure that has rotted because of water entering through a failed roof, without also fixing the roof.

Appendix B

Repointing of Masonry

The text for this appendix is extracted from the article " An Introduction to Repointing " by Robert C. Mack & James S. Askin, in APT Bulletin Vol.XI No.3, 1979 , pp.44-60.

Repointing is the process of removing deteriorated mortar from a masonry joint and replacing the old martar with new, sound mortar. Repointing also is known as tuck-pointing, or simply, pointing.

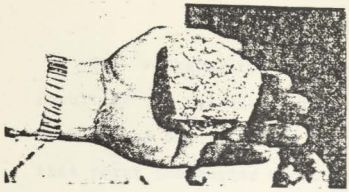
Special brick shapes should be ordered, rather than attempt to cut brick to the correct shape on the job site because the inner portions of a brick normally are not the same color as the originals, nor do they have the same durability. The color difference, therefore, would make the cut bricks visibly apparent while these same bricks would be subject to more rapid deterioration.

In ordering replacement units, it is best to use the actual existing masonry units themselves, rather than trying to describe them in the specifications, in order to duplicate the color and size of the originals. Bricks or stones representing the complete range of shapes, colors, sizes, and textures possibly may be removed from the wall and taken to the brick yard or quarry for comparison. In comparing visual aspects or replacement units with the originals, all the masonry units should be dry.

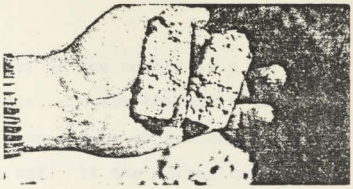
It is important for the repointing mortar to match the original mortar in color and texture, as well as physical characteristics. The simplest, most economical, and most durable method of obtaining this match is through the proper selection of the sand. Every reasonable effort, therefore, should be made to use sand which is similar to the original in color and gradation. In many cases, this may require using sand from than one source in order to obtain a range of colors.

Many mortars used before the twentieth cantury have small lumps of incompletely burned or ground lime. Occasionally other impurities may be found as well. If the repointing is to match the original appearance of the masonry. These impurities must be included in the new mortar. The easiest way to accomplish this is through the use of idential materials, such as ground oyster shell (obtained at feed stores) or lumps of lime, to duplicate original lumps.

The best way to obtaining a long term color match is to match the new mortar to the interior of the old mortar. If possible, a large piece of the original martar should be removed from the joint intact, then broken to expose the inner portion (Figure 1). A number of samples approximating this inner color then should be made up and allowed to dry for atleast 72 hours. The samples then are broken, and the inner portions compared with the originals. Addition samples should be made as needed to obtain the final match.

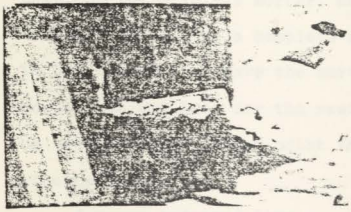


A small piece of original mortar has been removed from wall.

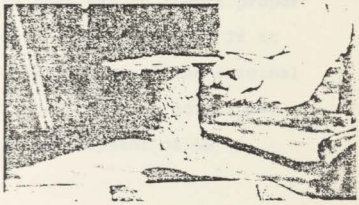


Same piece of mortar has been broken to expose unweathered inner portion.

Figure 1. Determining the interior color of old mortar.

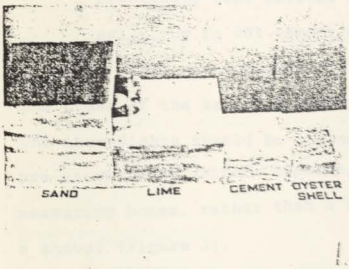


A mix of proper plasticity will stay on the trowel until is shaken just once.

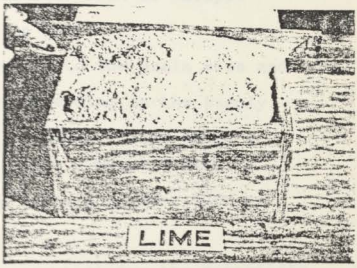


If mortar falls from trowel before shaking, or if more than one shake is required to loosen mortar, working properties require modification.

Figure 2. Testing the plasticity of the mortar mix.



Dry ingredients in measuring boxes.



Leveling ingredients to insure accurate measure.

Figure 3. Measuring the mortar ingredients.

The "workability" or plasticity of the mortar is a direct result of the selection of materials. Totest the mix a trowel with mortar on it is held upside down and os shaken once; at this point the mortar should fall off. If the mortar falls off without shaking, it has too much sand. If more than one shake is required, the mortar is too sticky or "plastic" and the lime content must be decreased (Figure 2).

Repointing mortar should not be harder than the masonry units or the original mortar, and the best way to insure proper hardness is to have a complete analysis of the mortar. If it is not feasible to have the mortar analyzed, or if the original mortar was too hard for the masonry, the following mortar may be used as the starting point for the development of an acceptable mix:

6 parts hydrated lime

12 parts sand

1 part white portland cement, if needed to improve plasticity (for extreme exposures, such as parapet walls, up to 20% cement may be used)

The exact mix required will relate to the grain size and sharpness of the sand and will vary depending on the supply. The ingredients should be measured by cubic volume using a pre-established uniform measure, such as a small bucket or measuring boxes, rather than a less uniform measure such as a shovel (Figure 3).

Adequate joint preparation is essential for the durability

of the repointing job. If the joints are incompletely prepared, the new mortar will start "poping" from the joint after only a few reasons of thermal expansion and contractin. With a properly done job, the new mortar will last fifty or more years.

There are three primary methods used for removing old martar: rotary power saws, power chisels, and hand chisels. Mortar removal should be done by skilled masons only. Power tools should not be used.

The third method of mortar removal is the only one which seldom causes damage to the masonry. In the hand method, a chisel is placed in the center of the joint and is pounded until the mortar integrates to the desired depth. This method, obviously, is the slowest method of cleaning the joints. Unlike the other methods, it rarely damages the masonry units.

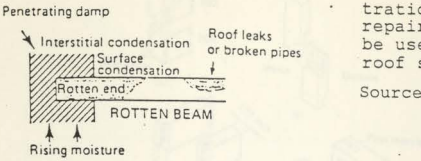
Old mortar should be removed to a depth 2-2½ times the thickness of the joint. This usually will result in the mortar being removed to a depth of approximately 1". All loose mortar should be removed, even if it is deeper than the depths indicated, because the new mortar must bond to sound existing mortar if the repointing job is to be durable.

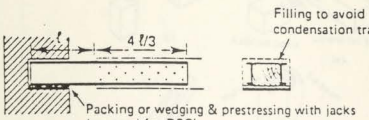
New mortar should be cured for several days to permit proper hardening of the mortar. Curing is acconplished by keeping the mortar moist, which prevents excessive drying during the setting process.

If the job was done well, however, the new mortar should last from fifty to seventy-five years before requiring replacement.

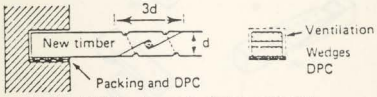
This appendix contains illustrations of timber joints during repair work. These joints may be used for either floor or roof structure.

Sources: Conservation of Historic Buildings by Bernard Feilden and Renovation by Michael Litchfield.

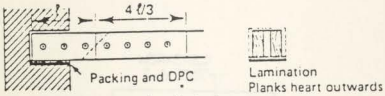




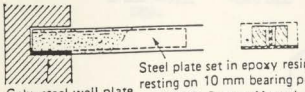
CRUDE REPAIR using galvanized steel brackets bolted on outside of sound parts

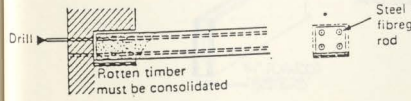


SCARF JOINT using similar timber, bolts and epoxy resin glue. Expensive and difficult, but can be done in situ. New wood must be set on a DPC and have ventilation



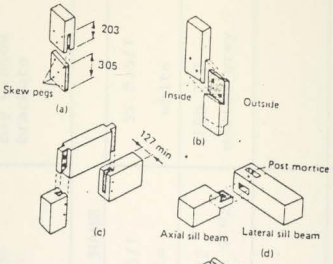
LAMINATION glued and bolted
Also expensive but can be done in situ, but may be easier than scarfing

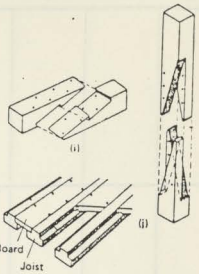


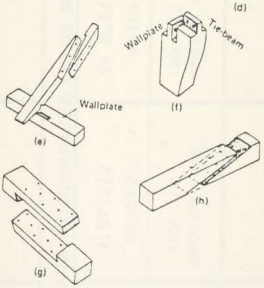


Access and firm working platform required for drilling

Repair of timber beams
Five possible methods of treating rotten ends of embedded beam





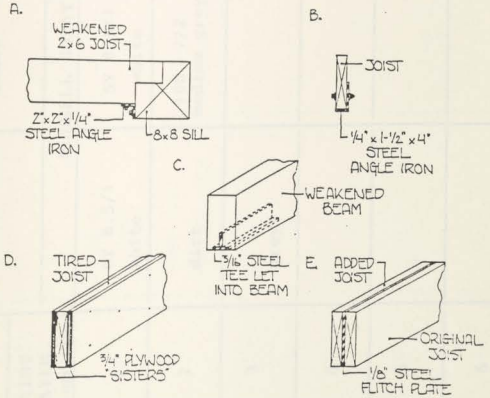


Timber joints in repair work

Chester House, Knowle, Warwickshire, England
(Courtesy: *Architects' Journal* and F.W. Charles)

Timber carpentry joint details used by the architect in repair work:

(a) Slip or fish tenon for studs, rods, etc.
(b) Repair joint for studs only
(c) Dovetailed tenon inset for collar or tie-beam
(d) Sill beam joint
(e) Face-splayed scarf for rafters
(f) Post head—wallplate and tie-beam joint
(g) Edge-bolted scarf—vertical, horizontal or inclined member, minimum length: depth × 3
(h) Scarf for repairing horizontal members, minimum length: depth × 2
(i) Tabled scarf—beams and joists with both end fixed skew-pegged, minimum length: depth × 2.5
(j) Scissor scarf for repairing joists, minimum length: depth × 2.5



Reinforcing with metal and plywood (A) Angle iron is very useful where rot is localized, as at the end of a joist. Here, thoroughly soak the joist end and the adjacent section of sill with preservative beforehand. (B) Where space is limited, a greater length of steel angle iron will bolster a sagging joist. (C) A steel tee let into a beam is a commercially-acceptable way of stiffening structure. (D) Plywood, used as a flitch plate between two joists or, as shown here, as "sisters," is very rigid when used on-edge. It is most effective when glued and screwed to the tired joist or joists. (E) A steel flitch plate is probably the strongest reinforcement shown here, because loads transmitted downward through its edge do not distort or twist the steel. Although a thickness of 1 in. or 1 in. is common, even a thin piece of metal (18 gauge, for example) will impart stiffness to companion joists if the metal is kept on edge.

Sample Color Charts

	SAMPLE LOCATION AND NUMBER				
PAINT LAYER (from top)	1 north elev. siding	2 north elev. east corner board	3 north elev. water table	4 north elev. soffit	5 north elev. bay window brackets
	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	5Y 8.5/1 white	5Y 8.5/1 white	7.5Y 2/2 black?	5Y 8.5/1 white	5Y 8.5/1 white
2	dirt	10B 7/2 medium grey	10B 7/2 medium grey	10B 7/2 medium grey	10b 7/2 medium grey
3	grey?				
4					
5					
6					
7					

note* The word chamber is used to indicate a second floor bedroom and its location such as kitchen chamber.

PAINT LAYER (from top)	SAMPLE LOCATION AND NUMBER				
	6 north elev. bay window window sash	7 north elev. bay window window sash	8 north elev. front hall door	9 south elev. pantry fascia	10 south elev. pantry soffit
	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	10R 3/4 red	10R 2/2 red	5Y 8.5/1 white	5Y 8.5/1 white	5Y 8.5/1 white
2	10B 7/2 medium grey	10B 7/2 medium grey	10B 7/2 medium grey	10B 7/2 medium grey	10B 7/2 medium grey
3			red	white (primer)	white (primer)
4			beige		
5					
6					
7					

	SAMPLE LOCATION AND NUMBER				
	11 south elev. pantry-frieze board, siding	12 south elev./ porch, porch window/caulking	13 east elev. siding	14 east elev. window trim	15 east elev. window sash
PAINT LAYER (from top)	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	5Y 85/1 white	75R 2/4 red	5Y 8.5/1? white	5Y 8.5/1 white	5Y 8.5/1 light grey?
2	10B 7/2 medium grey	5Y 8.5/1 white	10B 7/2 medium grey	wood	10B 7/2 medium grey
3	white(primer)	75R 7/4 pink	white		red
4	wood	10B 7/2 medium grey	wood		wood
5		wood			
6					
7					

	SAMPLE LOCATION AND NUMBER				
	16 west elev. water table	17 hall door	18 hall	19 parlor-mantel	20 parlor
PAINT LAYER (from top)	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	10YR 8/6 beige	10P 2/1 black/brown	5GY 5/2 grey-green	blue	blue
2	10B 7/2 medium grey	varnish	10GY 7/2 light grey-green	yellow	yellow
3	white	creme color or wood?	varnish	5GY 5/2 olive green	green
4	wood	wood	wood	medium grey	medium grey
5				light grey/ or white(thin)	wood
6				varnish	
7				wood	

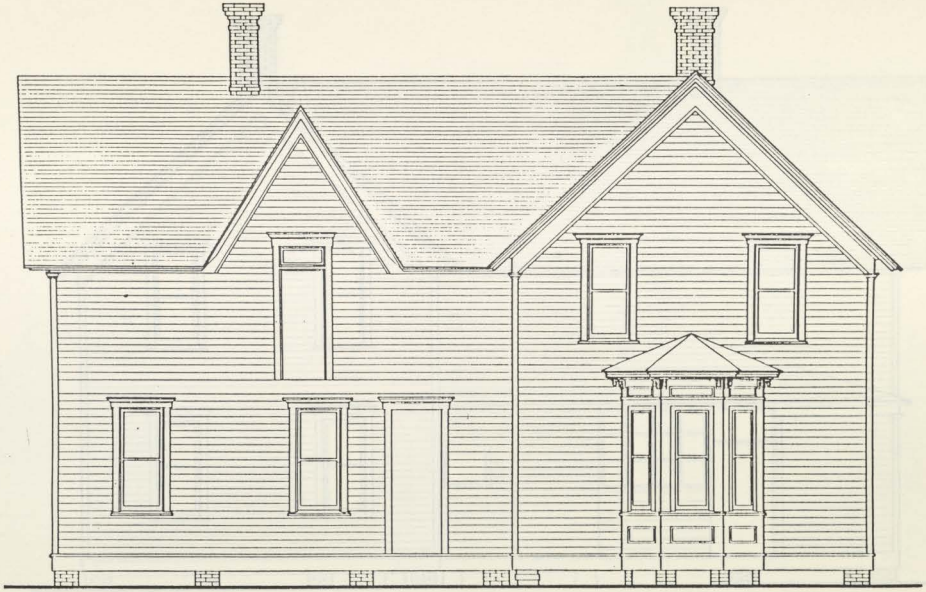
	SAMPLE LOCATION AND NUMBER				
	21 parlor	22 back parlor	23 back parlor	24 living room	25 living room
PAINT LAYER (from top)	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	blue	7.5YR 4/4 brown	brown	5B 7/8 blue	blue
2	yellow	light grey	varnish	10YR 8/6 beige	light blue
3	green	varnish	wood	ivory?	mustard
4	medium grey	wood		5GY 4/2 green	dark green
5	wood			varnish	varnish
6				wood	wood
7					

	SAMPLE LOCATION AND NUMBER				
	26 kitchen baseboard	27 kitchen door trim	28 pantry wall	29 hall-upstair	30 parlor chamber trim
PAINT LAYER (from top)	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	5B 2/1 black	salmon	white	2.5GY 6/2 medium grey/ green	2.5R 4/4 rose
2	10YR 9/2 white with pink highlight	red	yellow	primimer?	medium grey
3	10YR 9/4 tan(beige)	?	5YR 5/2 olive green	vanish	varnish
4	56Y 5/2 green	wood	wood	wood	wood
5	red				
6	varnish				
7					

PAINT LAYER (from top)	SAMPLE LOCATION AND NUMBER				
	31 parlor chamber	32 back parlor chamber	33 living chamber&kitchen chamber	34 kitchen	35 living room
	MUNSELL NOTATION AND STANDARDIZED COLOR NAME				
1	white?	10R 3/1 brown/grey?	varnish	10YR 8/1 light grey	7.5YR 3/5 brown
2	light olive	medium grey		green	olive green
3	varnish	varnish		red	varnish
4	wood	wood		varnish	wood
5				wood	
6					
7					

APPENDIX E
The Edwin Starr House
MEASURED DRAWINGS

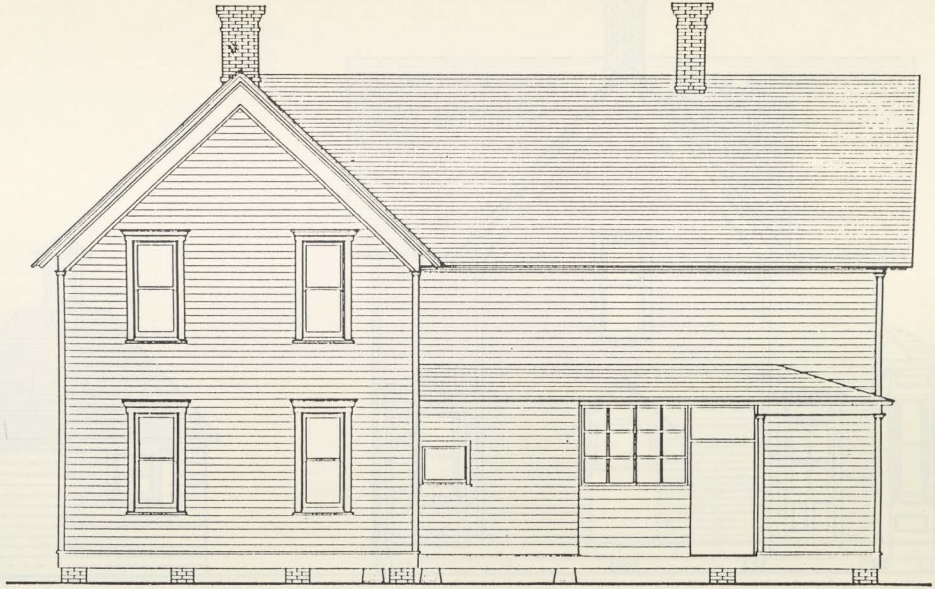
note* All drawings were made in the summer of 1985 and have been adjusted from the existing conditions of the house.



NORTH ELEVATION

0 1 3 5 FEET

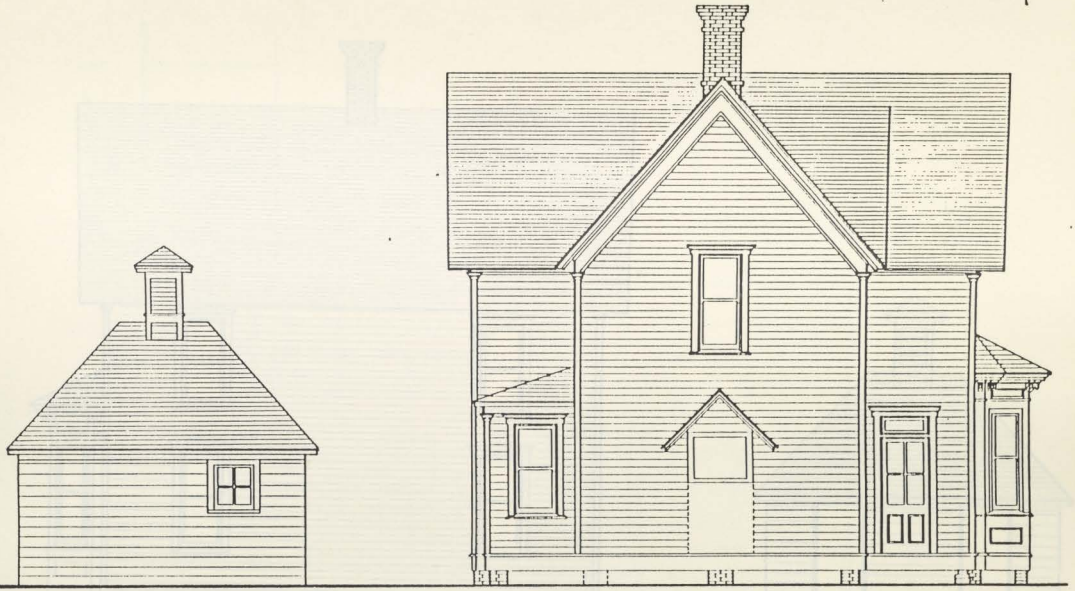
The Edwin Starr House
Benton Co., OR



SOUTH ELEVATION

0 1 3 5 FEET

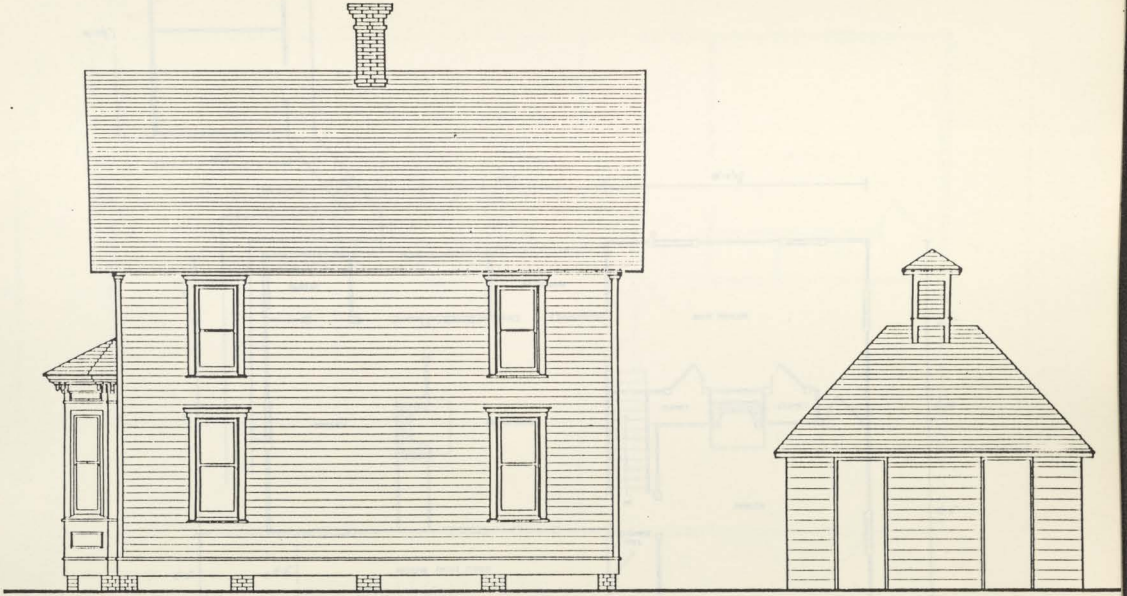
The Edwin Starr House
Benton Co., OR



EAST ELEVATION

0 1 3 5 FEET

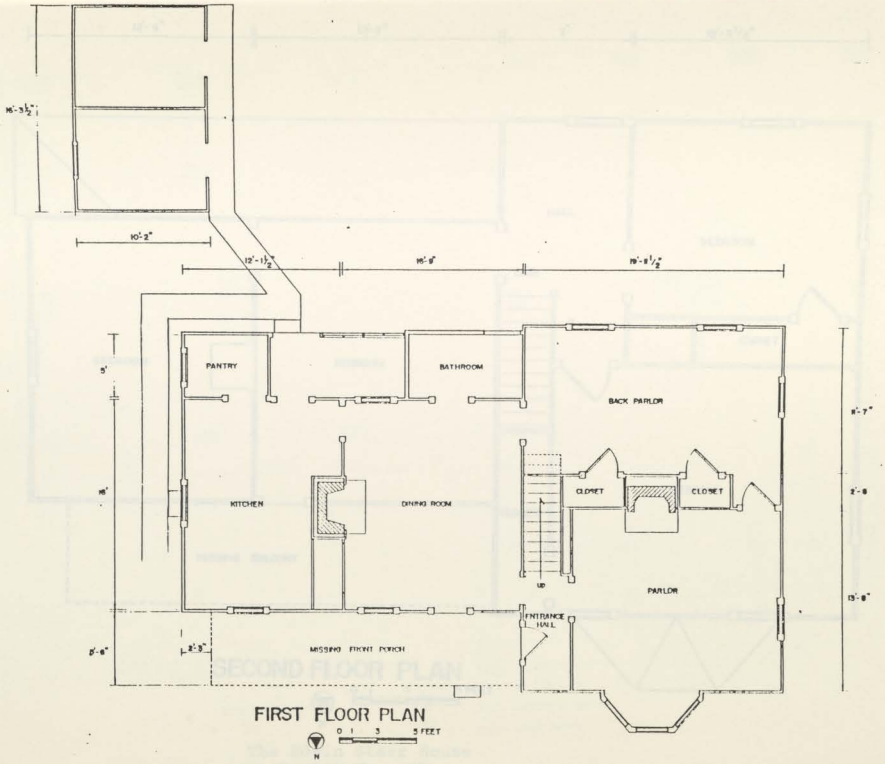
The Edwin Starr House
Benton Co., OR



WEST ELEVATION

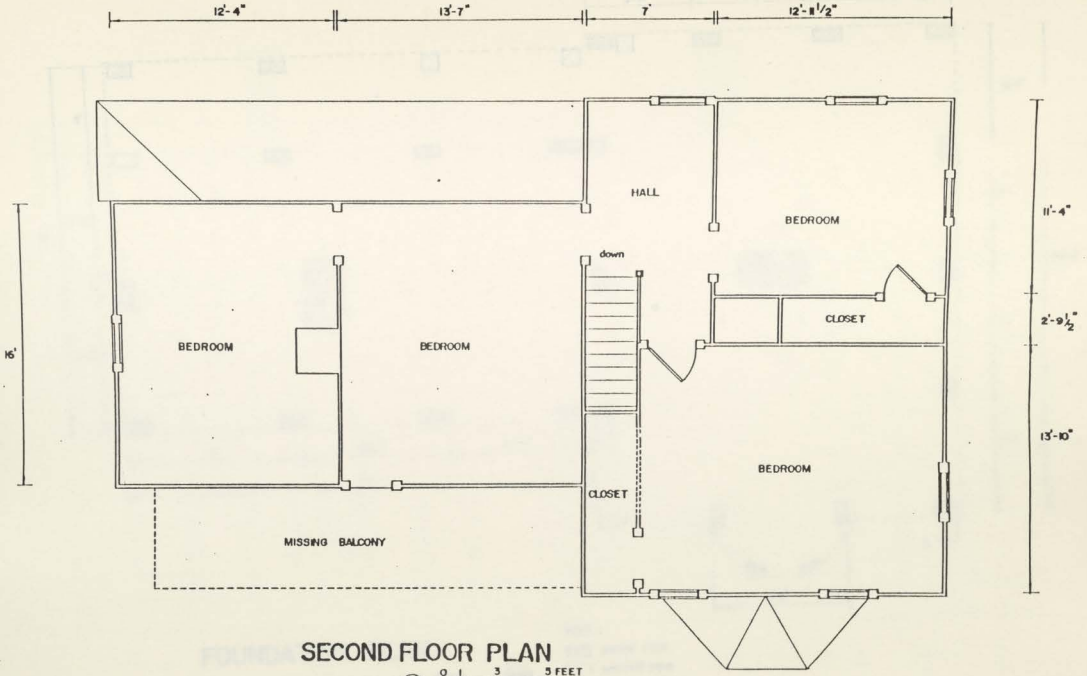
0 1 3 5FEET

The Edwin Starr House
Benton Co., OR

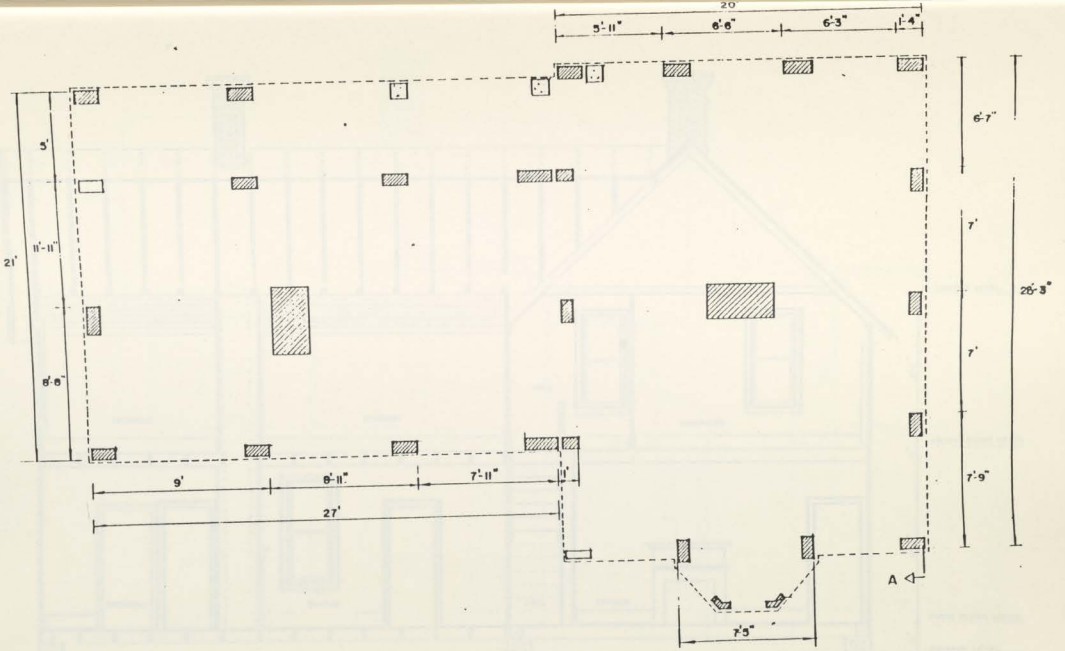


FIRST FLOOR PLAN

The Edwin Starr House
Benton Co., OR



The Edwin Starr House
Benton Co., OR



FOUNDATION PLAN

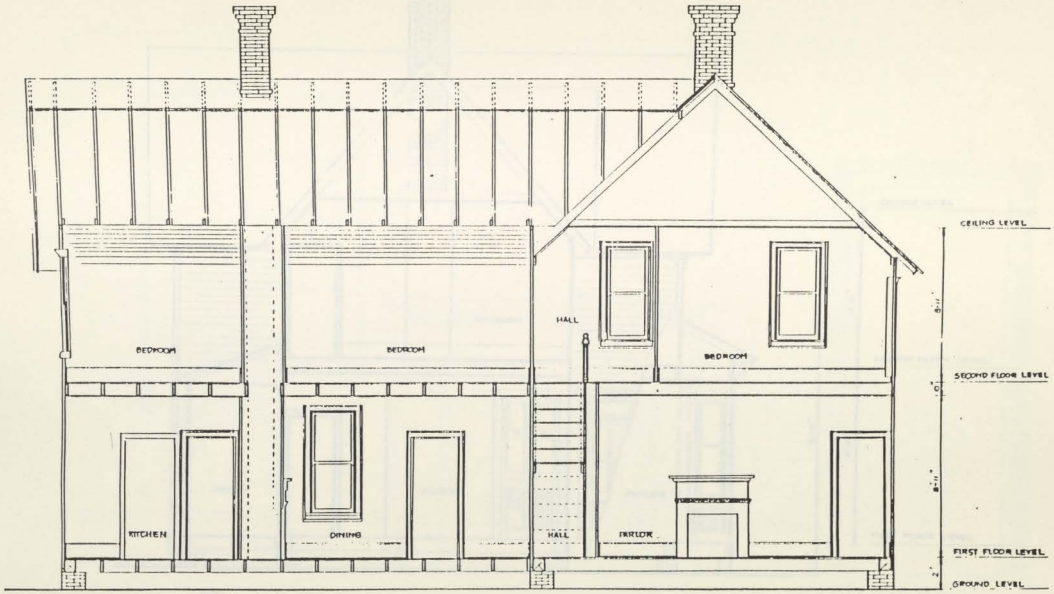
0 1 3 5 FEET

N

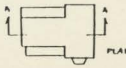
KEY:

- BRICK PIER
- MISSING PIER
- CONCRETE BLOCK
- WOOD BLOCK

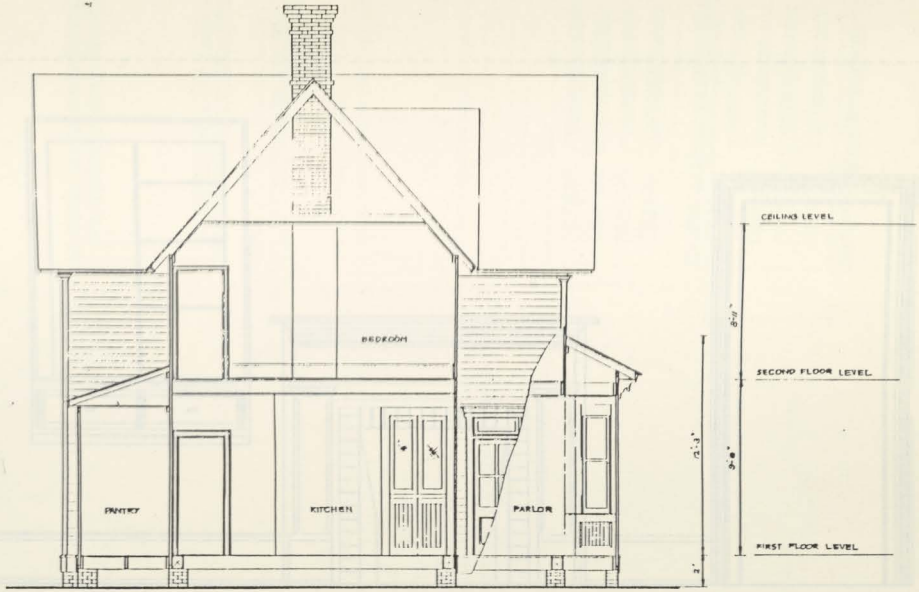
The Edwin Starr House
Benton Co., OR

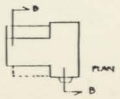


SECTION A-A



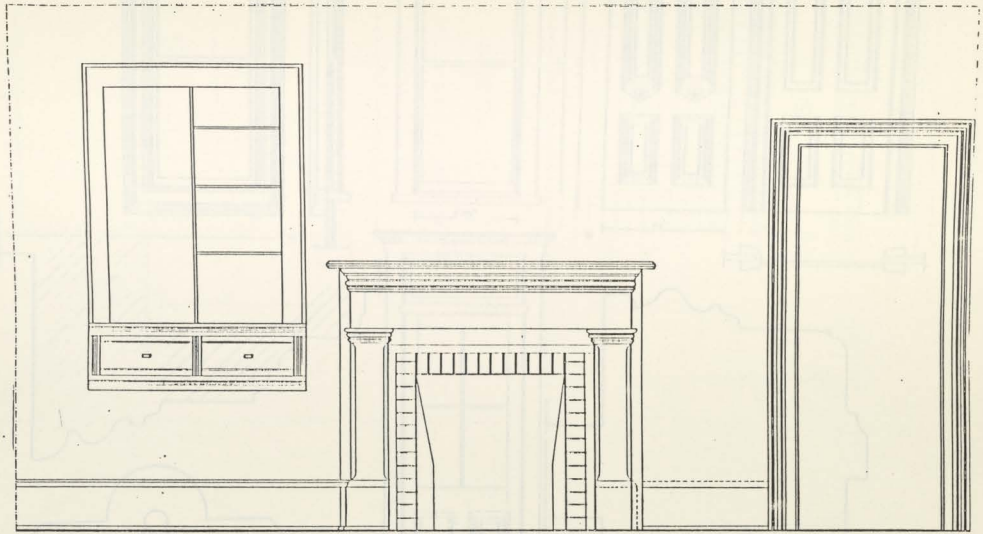
The Edwin Starr House
Benton Co., OR





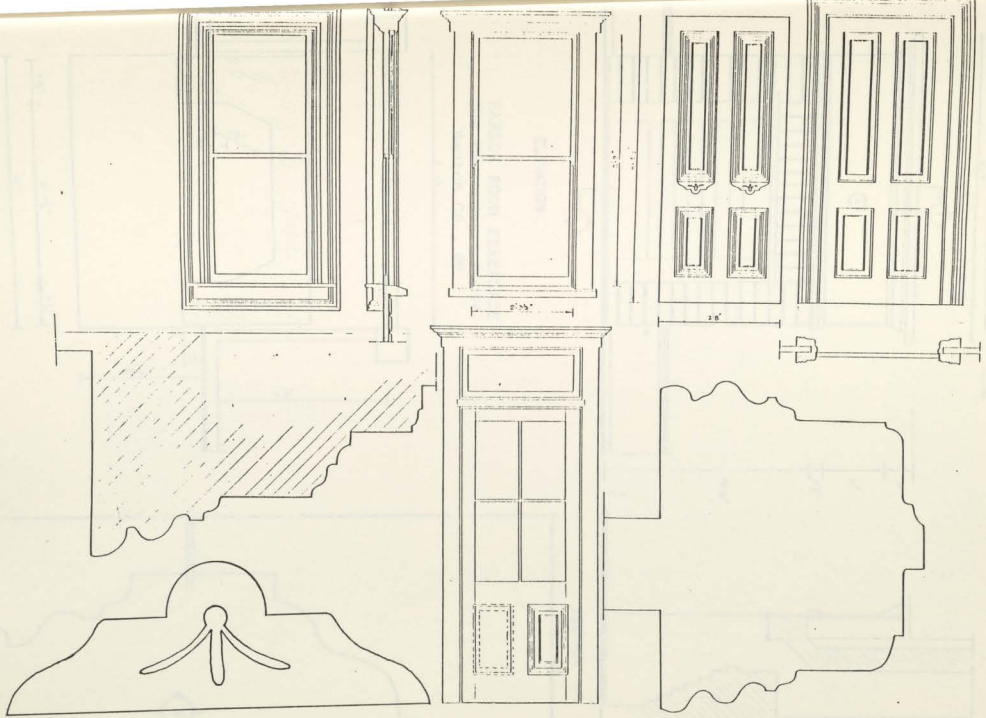
SECTION B-B

The Edwin Starr House
Benton Co., OR

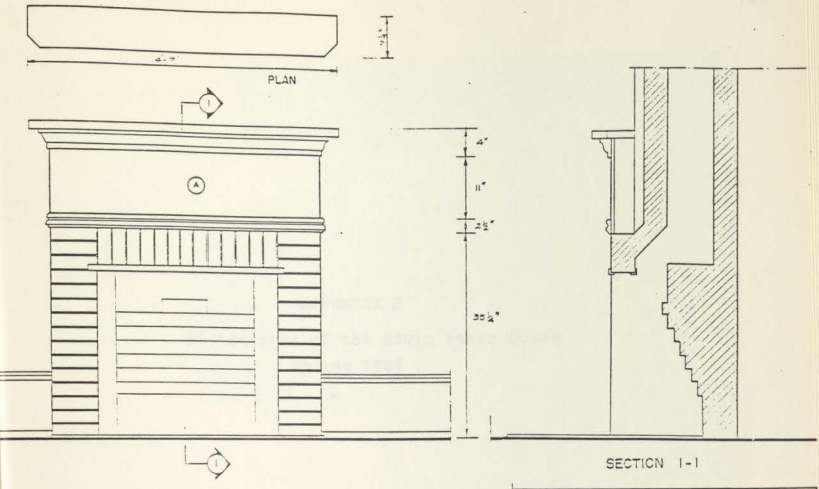


LIVING ROOM FIREPLACE

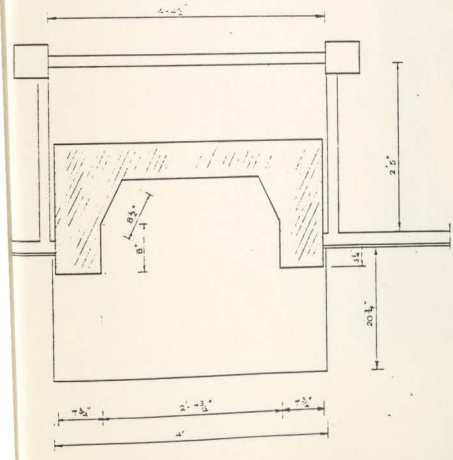
The Edwin Starr House
Benton Co., OR

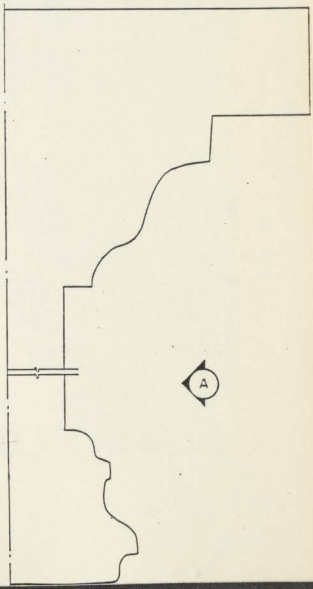


WINDOWS AND DOORS
The Edwin Starr House
Benton Co., OR



PARLOR ROOM FIREPLACE
The Edwin Starr House
Benton Co., OR

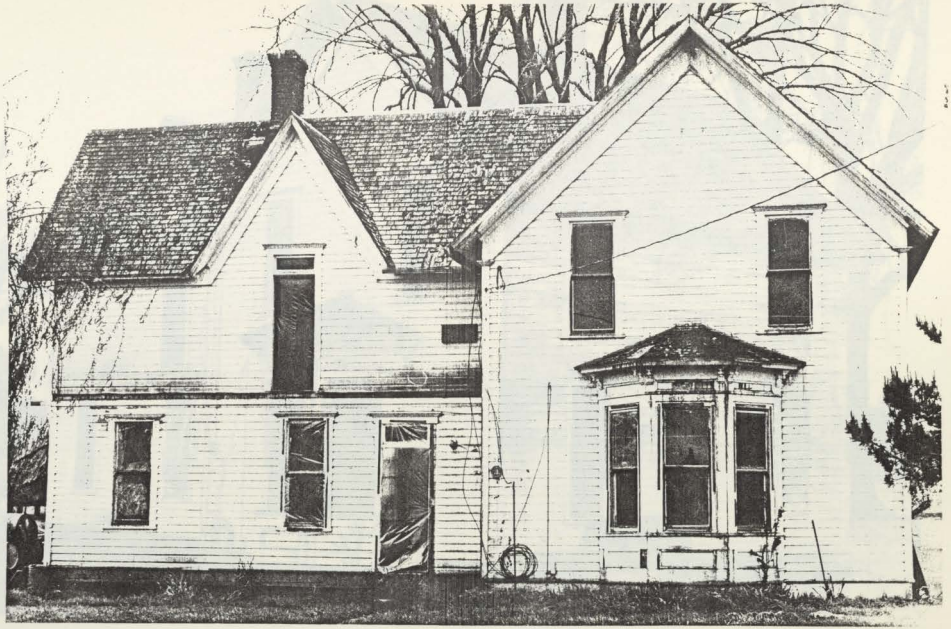




APPENDIX F

Photographs of the Edwin Starr House
spring 1985

The Edwin Starr House
From the entry driveway looking south to the house.



The Edwin Starr House
North Elevation

The Edwin Starr House
Looking from northsouth

The Edwin Starr House
South Elevation

The Edwin Starr House and the Dairy Building
East Elevations

Endnotes

[1]Portrait and Biographical Record of Willamette Valley Oregon. (Chicago:Chapman Publishing, 1903), p.1172.

[2]U.S. Department of the Interior. The Secretary of the Interior's Standards for Rehabilitation, p.1.

[3]Deed Records. On file at the Benton County Courthouse,Corvallis.

[4]Janine McFarland, "History of Reeves-Starr House," Study paper (Eugene: Univ. of Oregon, 1985), p.13.

[5]Ibid., p.14.

[6]Ibid., p.3.

[7]Philip Dole, "The Rural Landscape," in Space,Style and Structure, ed. Thomas Vaughan (Portland: Oregon Historical Society, 1974) I, p. 132.

[8]Portrait and Biographical Record of Willamette Valley Oregon, p.1172.

[9]Mark Phinney, "Edward(Reeves) Cemetary" document (Philomath: Benton County Historical Museum, 1983), p.1.

[10]Protrait and Biographical Record of Willamette Valley Oregon, p.1172.

[11]Ibid., p.1180.

[12]Ibid., p.1180.

[13]McFarland, p.6.

[14]Ibid., p.9.

[15]Ibid., p.8.

[16]William Tishler, "The Site Arrangement of Rural Farmsteads," APT Bulletin Vol. X, No.1, 1978, p. 63.

[17]Rosalind Clark, Architecture Oregon Style. (Portland: Professional Book Center, Inc., 1983), p.45.

[18]Dole, "Farmhouse and Barns at the Willamette Valley," Space, Style and Structure I, p.231.

[19]Clark, p.45.

[20]Dole, "The Rural Landscape," Space, Style and Structure I, p.30.

[21]Rudy Favretti, Landscape and Gardens of Historic Buildings, (Nashville: American Association of State and Local History, 1978), p.45.

[22]Michael Litchfield, Renovation, (New York: John Wiley and sons, Inc., 1982), p.201.

[23]Frank Fiori, "The George C. Cooley Cottage," The master's terminal project (Eugene:Univ. of Oregen,1983), pp. 76-77.

[24]Fiori, pp. 30-31.

BIBLIOGRAPHY

Bowen, W. Migration and Settlement on a Far Western Frontier: Oregon to 1850. Ph.D. Dissertation, University of California Press. 1972.

Brooks, Elizabeth. Starr house owner, Benton County, Oregon. Interview, 19 November 1985.

Byrne, R.O.. "Conservation of Historic Window Glass." APT Bulletin. Vol. XIII No.3 1981, pp.3-9.

Byrne, R.O.. "The Conservation of Wooden Moulding Planes." APT Bulletin. Vol. X No.4 1978, pp.93-99.

Clark, Rosalind. Architecture Oregon Style. Portland, Oregon: Professional Book Center, Inc. 1983.

Deed Records. On file at the Benton County Courthouse, Corvallis, Oregon.

Dietz, Albert. Dwelling House Construction. Cambridge, Massachusetts: MIT Press. 1974.

Dole, Philip. Prefessor of Architecture and Historic Preservation University of Oregon, Eugene, Oregon. Interview, 6 and 12 December 1985.

Fagan, David D. History of Benton County Oregon. Portland: A.G. Walling Publishing. 1885.

Favretti, Rudy. Landscapes and Gardens for Historic Buildings. The American Association for State and Local History, Nashville. 1978.

Feilden, Bernard. Conservation of Historic Buildings. Butterworth Scientific, London. 1972.

Feirer, John and Hutchings. Carpentry and Building Construction. Chas. A. Bennett Co. Illinois. 1981.

Fiori, Frank A.. "The George C. Cooley Cottage Brownville, Oregon. Historic Structure Report." Terminal Master's Preject, Historic Preservation Program, University of Oregon. 1983.

Frank & Schindler. Builder's Hardware Catalog. Indiapolis. 1896.

Hout, Lucile. Former owner of the Starr house. Interview 12 August, 1985.

Labine, Clem. The Old-House Journal Compendium. The Overlook Press, New York. 1980.

Litchfield, Michael W. Renovation. John Wiley & Sons, Inc., New York. 1982.

Mack, Robert. "An Introduction to Reporting." APT Bulletin. Vol. XI No.3 1979, pp.44-60.

Mack, Robert. "Preservation Briefs: 1 The Cleaning and Waterproof Coating of Masonry Buildings." Washington D.C.: Technical Preservation Services, Historic Conservation and Recreation Services, U.S. Department of the Interior. 1975.

Marriage Records of Benton County. On file at Benton County Courthouse, Corvallis, Oregon.

Mayhew, & Myers. A Documentary History of American Interior. Charles Scribner's Sons, New York. 1980.

McFarland, Janine. "History of Reeves-Starr House." and "Hardware of the Reeves-Starr House." Papers for Preservation and Restoration Technology class, University of Oregon. 1985.

Melnick, Robert. Cultural Landscapes: Rural Historic District in the National Park System. U.S. Department of the Interior. 1984.

Montgomery Ward and Co., Catalogue and Buyer's Guide. No.57 Spring and Summer 1895. Dover Publications, Inc., N.Y. 1969 reprint.

Myers, John H.. "Preservation Briefs: 9 The Repair of Historic Wooden Windows." Washington D.C.: Technical Preservation Services, Historic Conservation and Recreation Services, U.S. Department of the Interior.

Phinney, Mark. Historical Records Survey. Document on file at Benton County Historical Museum, Benton County. 1938.

Portrait and Biographical Record of Willamette Valley Oregon. Chicago: Chapman Publishing Company. 1903.

Prudon, Theodore. "Wooden Structural Members: Some Recent European Preservation Methods." APT Bulletin. Vol. VII No.1 1975, pp.5-11.

Sally, Donavan and Suttitum, Tada. "Paint Analysis of the Reeves-Starr house." Paper for Preservation and Restoration Technology class, University of Oregon. 1985.

Scheffer. Principles for Protecting Wood Buildings from Decay. Forest Services, U.S. Department of Agriculture. 1979.

Stahl, Frederick. A Guide to the Maintenance, Repair, and Alteration of Historic Building. Van Nostrand Reinhold Company, Canada. 1984.

The Old House Journal. Patricia Poore editor, Brooklyn, New York.

Thompson, Dehart and Companies. Thompson, Dehard and Company Price List and Illustrated Catalogue of Hardware. Portland, Oregon. 1896.

Tishler, William. "The Site Arrangement of Rural Farmsteads." APT Bulletin 10, No.1 (1978): 63-77.

U.S. Department of the Interior. The Secretary of the Interior's Standards for Historic Preservation Projects. Washington D.C.

Vaughan, Thomas, ed. Space, Style and Structure; Building in Northwest America, Vol 1. Portland: Oregon Historical Society. 1974.

Vila, Bob. This Old House. Little, Brown & Company, U.S.A. 1980.


D50 Illuminant, 2 degree observer
Colors by Munsell Color Services Lab