ANGLO-ONTARIO FARM BUILDINGS

An Architectural History Theme Study

David Butterfield
Historic Resources Branch

Manitoba
Culture, Heritage and Tourism

On the cover:
This image from the Provincial Archives Manitoba, entitled "Six years after settlement on the prairie," shows an elaborate house and a large barn on a neat little farmyard dotted with neatly stoked wheat. This image reflects the dream of so many immigrants to Manitoba from southern Ontario, and suggests the type of building forms and styles that these new-comers would come to build over the first 30 years of settlement, and which still can be found in the area around Brandon, which was the destination for many of these pioneers.

TABLE OF CONTENTS

PREFACE

This booklet has been adapted from a larger publication developed in 1983 by the Historic Resources Branch of Manitoba Culture, Heritage and Tourism. That study, *Architectural Heritage. The Brandon and Area Planning District*, should still be available in public libraries.

That original study was intended to assist various local governments (Rural Municipalities of Cornwallis and Elton and City of Brandon), formed into the Brandon and Area Planning District, to gain a better understanding of the architectural heritage of the region, and thus to undertake better educational, tourism, designation and conservation programs. To that end, this original work also contained a substantial selected inventory of buildings in the area, and sections focusing on other aspects of the region's history.

A major part of the study focused on farm buildings, and especially on the prevailing architectural traditions of the most common pioneer settlement group in the region – from southern Ontario. It is that section of the original report that has been adapted here, to enable readers to get a better sense of the traditional architectural styles and forms, materials and construction practices, that define this important aspect of Manitoba's architectural history.

There are many other areas of the province that have similar southern-Ontario building traditions, and this booklet, while focused on the area around Brandon, certainly contains information that applies to those places as well.

INTRODUCTION

THE DEVELOPMENT OF MUCH of south-central and southwestern Manitoba, beginning in the late nineteenth century settlement, was undertaken by settlers from southern Ontario. Like other groups that would soon join them, these pioneers brought with them distinct building forms and construction techniques that were on clearest display in their farm buildings.

Within the typical farmyard of a newly-arrived southern Ontario family, it was the house and the barn that provided a focal point for the whole yard's development. Being the first two structures built (almost simultaneously), on the yard, the house and the barn share a position of equal importance in the hierarchy of farmstead buildings. The granaries, elevators, sheds, chicken coops and other storage buildings built after the house and barn were usually of secondary importance.

Initial structures built during the 1870s, like tents, lean-tos, sod huts or crude log shanties offered a rudimentary, yet quick, means of providing shelter for humans and animals (Figure 1). Throughout the first stage of settlement, the location of a water source was the dominant factor in determining the yard's layout. The barn was placed closer to the water source to provide easier handling of water for livestock. At this time, both the barn and the house were approximately the same size. Within the yard, these first crude buildings were generally arranged in a cluster for three reasons: to make access between buildings easier, to provide shelter from the prevailing northwest winds, and finally, to contain the buildings within a fireguard trench dug around the yard. The average homesteader built few additional storage structures at this time, as available money was spent on land, seed and farm equipment.

After a few months (although sometimes it took years depending on economic circumstances) the pioneer settlers were often able to replace these first structures with more comfortable ones (Figure 2). These moderately sized farms, with small houses, barns that had now become somewhat larger than the house, and more out-buildings, served most of the new southern Ontario settlers during the 1880s.

The surveying of Elton-Cornwallis in the late 1870s strongly influenced farm an established business enterprise, houses became more commodious, barns grew to a dominant size within the farmyard and associated buildings became more numerous. In addition, a fairly systematic approach to yard layout was developed. The house was located closer to the main section road to provide initial views and access. The more utilitarian barn was generally located in a position behind the house, in such a way that it was easily accessible from the house, provided a wind break, but was not upwind from the house. While these layouts are regularly seen in the Brandon area, there are enough exceptions to limit its application as a specific rule.

Figure 1
"Breaking the Prairie," ca. 1880. This idealized illustration shows the progression of habitation. While the first crop is being prepared other members of this pioneer group construct a small frame house. The tent in which the settlers are still temporarily living will soon be vacated. (Provincial Archives Manitoba.)
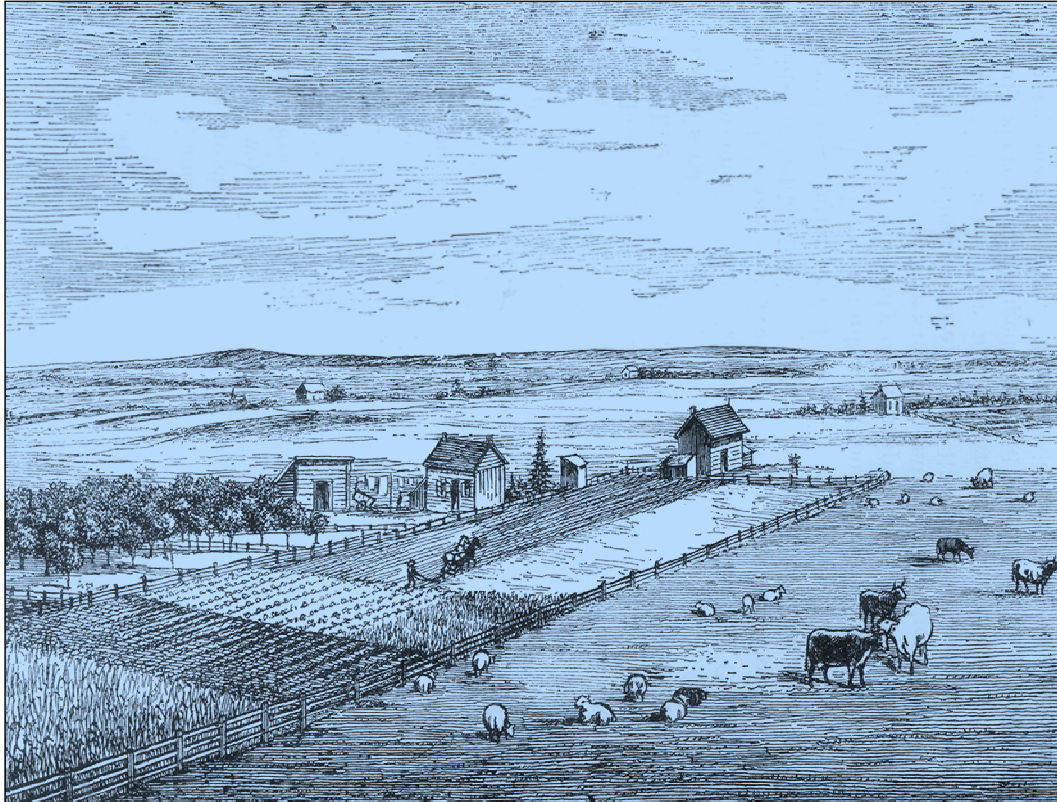
Figure 2
Two years after settlement on the prairie,
ca. 1883. (Provincial Archives Manitoba.)

HOUSES

The three stages in the development of residential architecture around Brandon, illustrated in the previous two figures (1 and 2) and also in Figure 3, can be easily distinguished, but they are difficult to date precisely. Although log houses were generally the first type of house built in the area, many log structures continued to be constructed after the turn of the century, while the small-scale 1½ storey house was the most prevalent house-type for the first fifty years of settlement.

A detailed analysis of the three stages in residential design will indicate what economic and cultural circumstances promoted their development. It will also show what construction differences gave all three a sense of individual character.

Figure 3
Six years after settlement on the prairie. An elaborate house and a large frame barn now dominate this neat little farmyard. (Provincial Archives Manitoba.)

Initial Structures

Upon arrival along the unoccupied slopes of the Assiniboine River, the pioneer settlers in the Elton-Cornwallis area built their first shelters, crude lean-tos and hastily constructed log or sod shanties. Frequently situated so that a dugout could be fashioned from an embankment or a hillock, these first structures provided room for one or two people. They were only inhabited during the first stage of settlement, while the land was cleared and a small crop was sown.

This stage of settlement, during the late 1870s and early 1880s, was difficult and it took some time before homesteaders were able to adjust to the hard work and the harsher climate on their new farms. Some remained until the 1890s in the initial conditions of settlement, living in shacks and subsisting on meager crops. Many settlers, however, adjusted to the difficulties of their new life and within a few years were able to harvest good crops and even encourage family relations from the east to venture west. The stability of their lifestyle at this time permitted many homesteaders throughout the west to consider the construction of a better house. Well-crafted 1½ storey log houses were usually constructed, although some sod houses were also built (Figures 4 and 5).

Figure 4
Log home under construction, Somerset, ca. 1900. (Provincial Archives Manitoba.)

Figure 5
A Sod home, ca. 1900. (Provincial Archives Manitoba.)

Log cabins usually had a single large room on the ground floor in which space was provided for cooking, eating and family gatherings. The top floor was usually divided into two bedrooms; one for the parents and the other for the children.

A simple medium-pitched roof and a small rectangular plan characterized the form of early log houses. Constructed by placing large logs one atop the other, log buildings required a corner joint that locked the walls together. Only a limited variety of notches were popular in the Canadian west during the nineteenth century. Dovetail joints and saddle-notch joints were the two most common methods of connecting log walls (Figures 6 and 7). While both notching procedures could produce joints of exceptional quality, the saddle-notch in this area was typically the earlier and less refined construction method. One of the first settlers in the area, the Reverend George Roddick, built a log cabin with saddle-notched corners although it is unclear whether he used a top or bottom notching procedure (Figure 8).
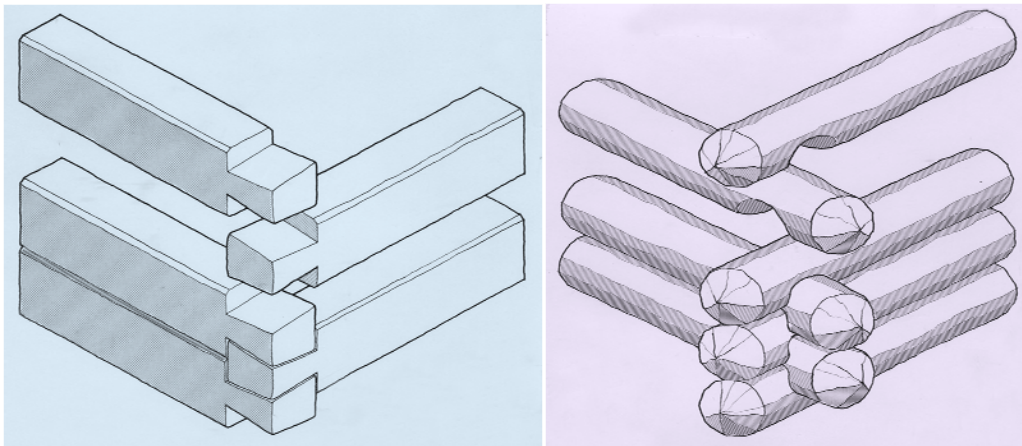

Figure 6
Dovetail construction (left) entailed cutting a wedge-shaped joint at each end of the squared logs. The logs were lapped at the corners and joined in an interlocking system that created a strong neat corner and ensured a waterproof joint.

Figure 7
In saddle-notch construction (right), round logs were lapped and, at the corners, curved notches were cut about a foot back from the end of the log. The location of the saddle-notch on the bottom of the log was more desirable as it allowed water to drain downwards, reducing the possibility of rain gathering in a top-notch and rotting the joint.

Figure 8
Reverend Roddick log cabin, SE 17-9-18W, ca. 1879. This house was probably one of the first built in the planning district, and this image suggests the rough pioneer experience. (Murray McPherson.)

Dovetail joining in Manitoba was usually more sophisticated than saddle-notching. Within the region there were no log houses located during the survey although a photograph of Reverend Roddick's second house reveals dovetail joinery (Figure 9).

Figure 9
Reverend Roddick log house, SE 17-9-18W, ca. 1900. This dovetail-joined log house was dismantled in the 1950s. (Murray McPherson.)

Small Houses

The C.P.R. passenger trains that began arriving at Brandon in 1881 brought with them the first large groups of settlers to the planning district. Hundreds of immigrants from Ontario, Québec, the Maritimes, and the United Kingdom poured into and through Elton-Cornwallis before 1885. Those settlers of Scottish and Irish origin from southern Ontario formed the majority. Their first dwellings were, like their predecessors', rudimentary constructions. However, local timber sources for log cabins were soon depleted and it became necessary for settlers to begin building with another structural material.

Although milled lumber had been available from the Rapid City mill since the 1870s, the difficulties encountered with transporting loads downriver usually made construction with logs quicker and more practical. With the growth of Brandon and the introduction there of a number of saw mills, the situation was drastically altered. Cut lumber was soon readily available to all parts of the region. Log houses certainly continued to be built into the 1890s by poorer settlers. However, the ready-made quality of milled lumber not only provided easier construction than with logs, but it also created a neat finished appearance that was prized by settlers wishing to leave behind their pioneering lifestyle. The advantages of frame construction impressed settlers, and the majority of residences built in Elton-Cornwallis after 1880 were constructed using lumber.

Before 1900, 1½ storey houses in the planning district were generally modest structures with minimal pretension of architectural style. These houses were usually rectangular in plan and had a gable roof of medium slope. Within this basic form two types of house, distinct in floor plan and external character, can be identified.

Ontario-Gothic Houses

The first type was based on houses familiar to settlers who had migrated from southern Ontario (Figure 10). An abandoned house at SE 28-11-17W is a typical example of this residential type (Figure 11). The front of the house was on the long side of the rectangular floor plan (Figure 12 and 13). The door was nearly always centrally placed creating a symmetrical facade that was accented by a central gable (Figure 14). Internally the house contained a central hallway, sometimes running from front to back, effectively dividing the ground floor in two, with rooms on each side.
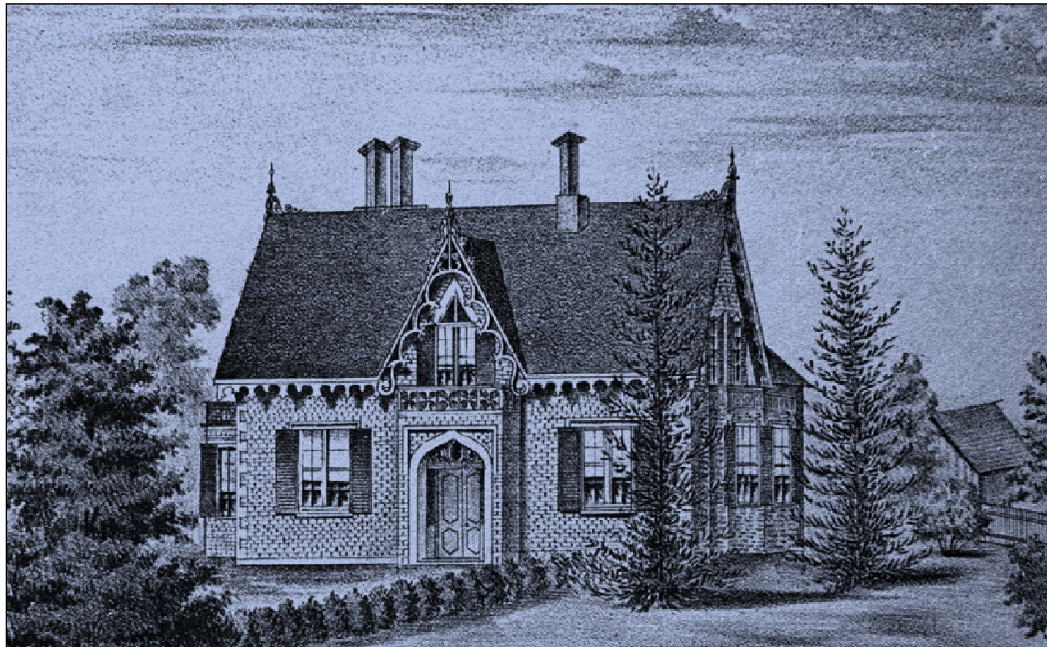

Figure 10
A large southern Ontario house in the county of Norfolk. This house form was usually enhanced with Gothic-style forms that were in vogue throughout southern Ontario during the 19th century. Barge-boards, pointed windows and steeply-pitched gables were typical elements incorporated in sym-metrically-planned houses. (Historical Atlas of the Counties of Halde-mand and Norfolk, H.R. Page & Co.)

Figure 11
Symmetrically-planned 1½ storey house, SE 28-11-17W, ca. 1885. Although abandoned and in disrepair, the presence of square nails and pedimented window caps date this house as a pre-1900 construction.
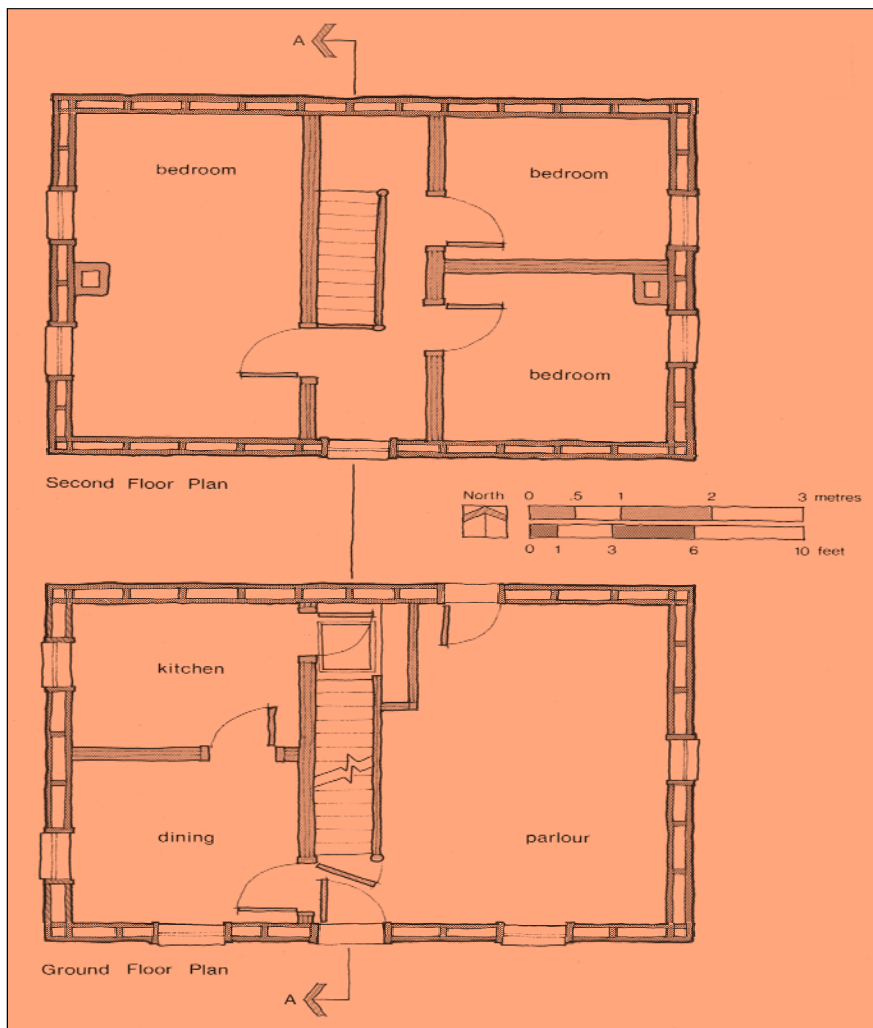
Figure 12
Symmetrically-planned 1½ storey house: ground floor and second floor plans. New settlers in the west could hardly afford the time or money to construct elaborate stone houses. Instead, they often chose lumber.
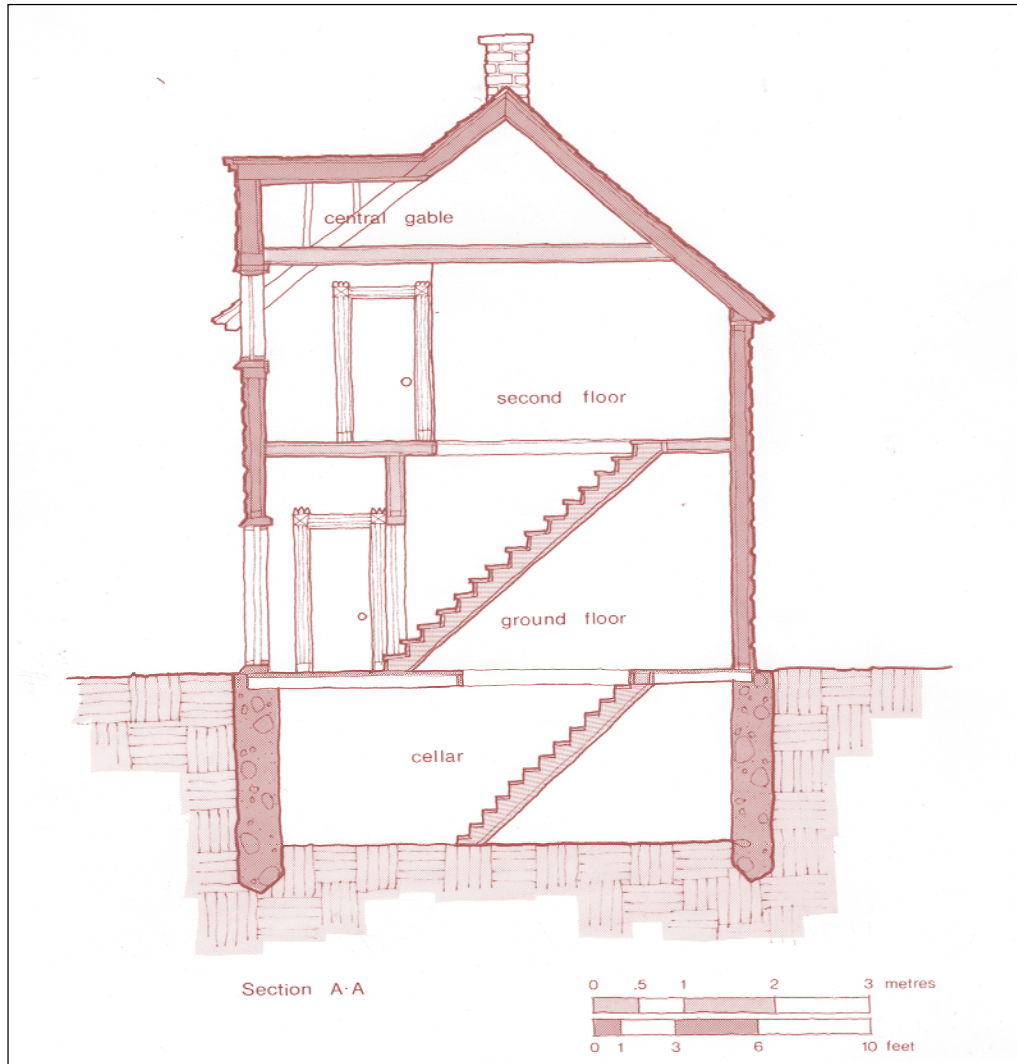
Figure 13
Symmetrically-planned 1½ storey house: section. A cellar, like the one in this house was a typical feature in most residential structures in Canada. The damage to the structure caused by frost heaving was a continual problem in the cold northern climate. In this instance a fieldstone foundation extended six feet below grade creating a full basement

Figure 14
Gothic-style pointed windows and central gables with bargeboards were usual motifs of the symmetrically-planned small-scale house.

Side-hall Houses

The second basic house type built before the turn of the century in Elton-Cornwallis was plainer in appearance than the type transplanted from southern Ontario. A house at NW 3-12-19W is a fairly well-preserved example of this type of small-scale frame construction (Figure 15). One-and-a-half storeys like the previous type, the basic differences between the two relate to their internal planning and the consequent changes in fenestration patterns. This second type of rectangular house had its front on the short side of the floor plan (Figure 16). To make the most efficient use of interior space, the front door would be placed to one side creating an asymmetrical and vertically massed front. Internally, on the ground floor, the hall was located to one side at the front of the house (Figure 17).

Figure 15
Side hall-planned 1½ storey house, NW 3-12-19W, ca. 1900. Although round nails in the main structure of this house imply that it was built around 1900, its basic form, planning and fenestration reflect the basic rectangular house type built fifteen years earlier.

bedroom

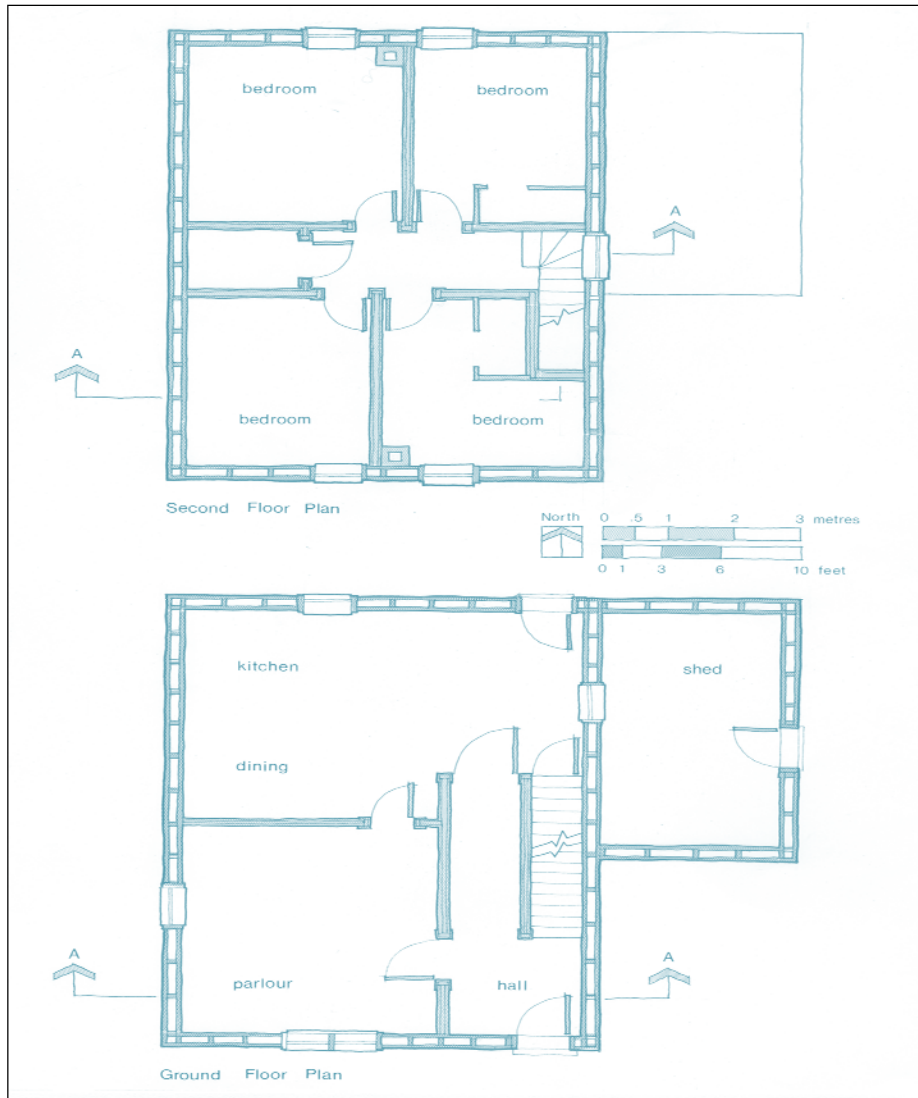bedroom

A

A

bedroom

bedroom

Second Floor Plan

North 0 .5 1 2 3 metres

0 1 3 6 10 feet

kitchen

shed

dining

A

A

parlour

hall

Ground Floor Plan

Figure 16
Side hall-planned 1½ storey house:
ground and second floor plans.

18

second
floor

ground floor

cellar

Section A·A

0 5 1   2   3 metres
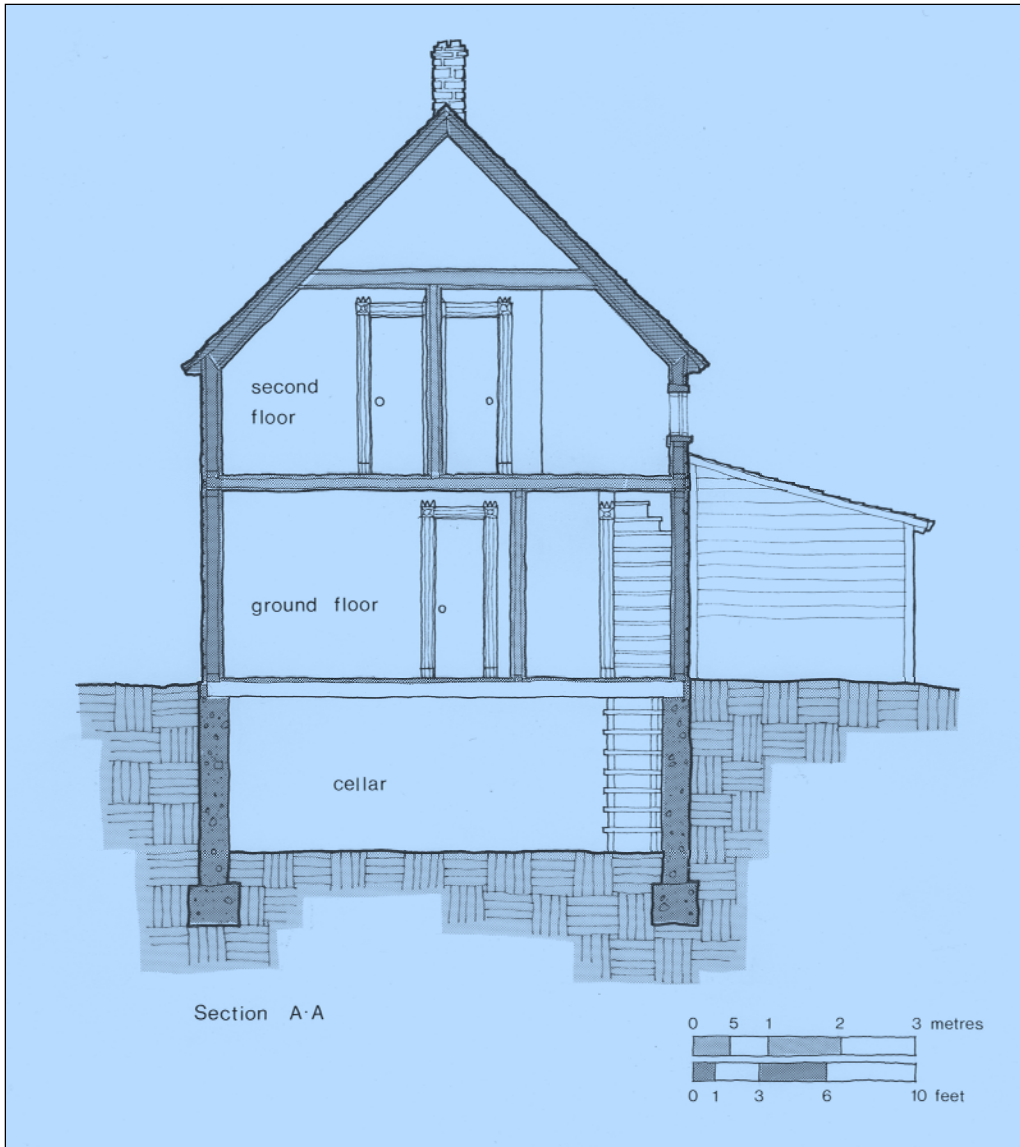
0 1 3   6   10 feet

Figure 17
Side hall-planned 1½ storey house:
section.

Until 1930, when these residences became less popular, both of the rectangular house types were usually constructed using a wooden frame sheathed with wood siding. There were two basic framing types common in the building of these small-scale structures. The first, balloon framing, was the most typical frame construction method used before 1890; platform framing succeeded balloon framing after 1890.

Balloon framing permitted quick and easy construction of the exterior frame and the addition of the roof before interior work was begun (Figure 18). The addition of the roof at this stage allowed work to progress inside during inclement weather. The actual construction procedure entailed the attachment of 40 x 80 mm (2" x 4") studs to a sill plate that was secured to the foundation. The stud walls extended in one piece up to the plate supporting the roof. Floor joists, supported by ribbon boards, were nailed to the individual studs.

The platform framing procedure eliminated the need for long 40 x 80s (2" x 4"s) and also permitted construction in stages (Figure 19). Each stud wall, which extended only one storey, was pre-assembled as a unit at each succeeding stage of construction. The individual walls were fitted into prescribed vertical positions and secured to horizontal plates.
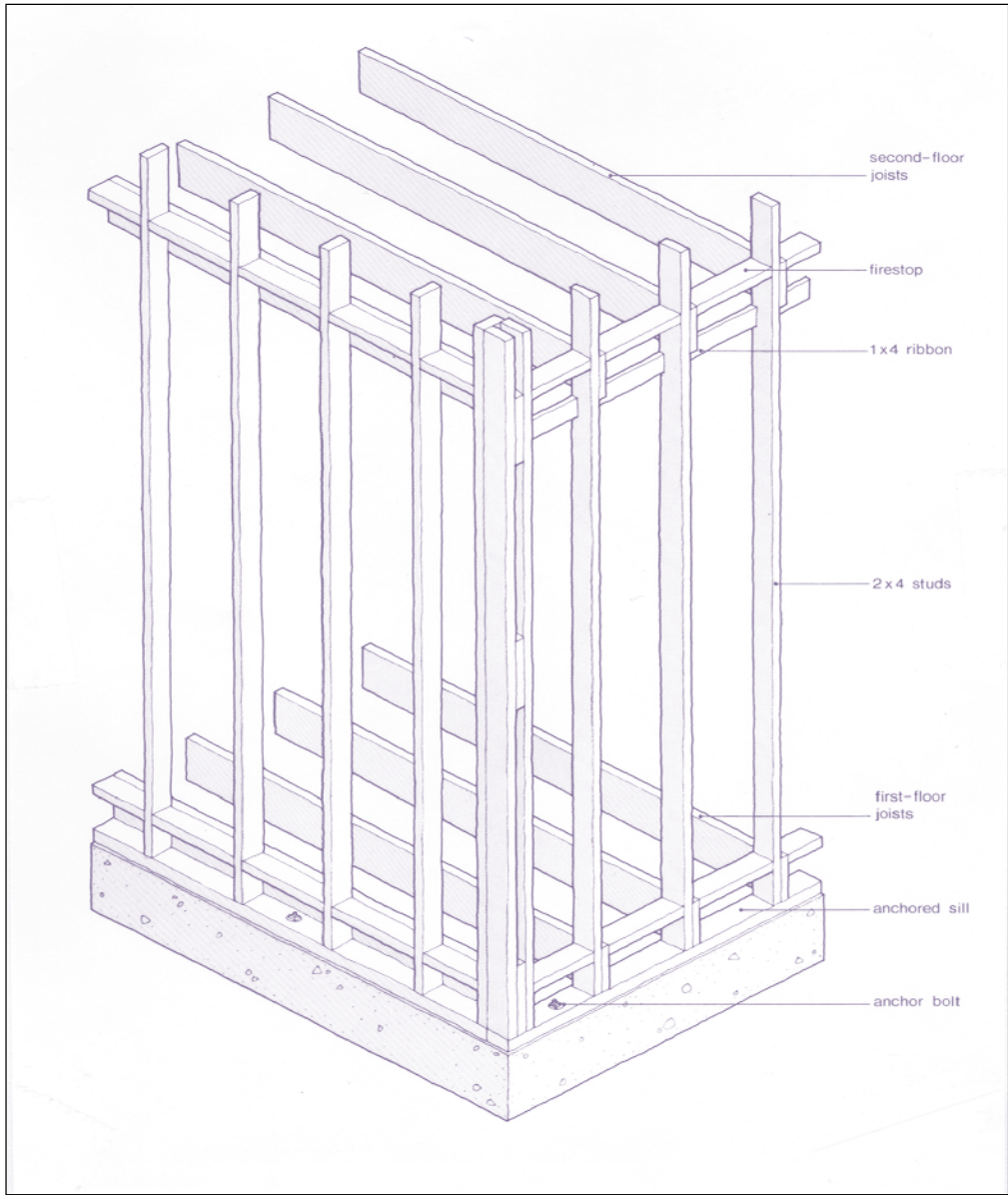
second-floor joists

firestop

1 x 4 ribbon

2 x 4 studs

first-floor joists

anchored sill

anchor bolt

Figure 18
Balloon framing construction.

second-floor joists

sole

subfloor

header joist

girt

2 x 4 studs

first-floor joists

sole

subfloor

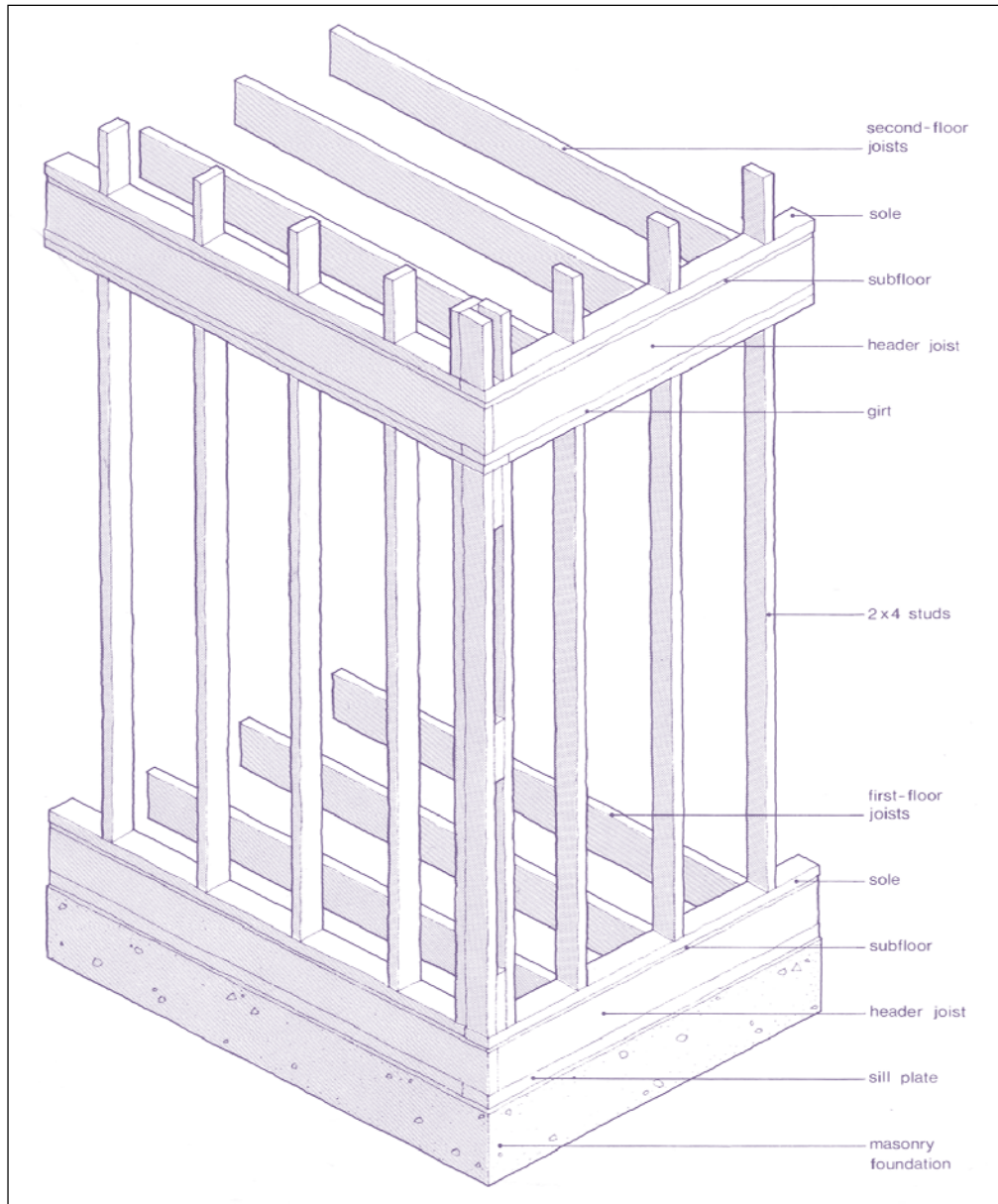header joist

sill plate

masonry foundation

Figure 19
Platform framing procedure. Each floor was built separately. The stud walls were assembled and arranged at each succeeding stage of the construction.

Platform framing continued to be used for the construction of small-scale frame residences in the area during the first three decades of the 2oth century. At the same time, however, the two basic house types were occasionally built of stone or veneered with brick or concrete.

Fieldstone houses varied both in terms of appearance and construction procedures. Fieldstone rubble of different sizes bonded with large amounts of mortar resulted in rough walls that were often covered with plaster outside and wood lath and plaster inside. Neater, more elegant stone houses required the skills of a mason. Carefully-cut and faced stones, bonded with small amounts of mortar, created straight, solid walls. A house at NW 21-9-18W is a symmetrically-planned house executed in fieldstone (Figure 20).

Figure 20
Centrally-planned 1½ storey stone house, NE 21-9-18W. The well-cut blocks of this symmetrically-planned house recall the more elaborate stone houses of southern Ontario. The house was used from 1907 to 1915 as the Brandon Hills Post Office.

The use of brick veneer was not common for the construction of small-scale residences. Indeed, there are only two existing small-scale brick residences left in the planning district. Brick was expensive before the turn of the century and the construction procedures were labour-intensive. Erecting a frame for small-scale house and then covering it with brick was unaffordable for most farmers in the area. A house in Forrest is a more substantial brick veneer version of the second basic house type (Figure 21).

Figure 21
Side-hall planned 1½ storey house, Forrest. A more elaborate version of the second common house type is created in this Forrest house using buff brick veneer, extended proportions and detailing in the parlour window and gable peak.

Large Houses

By the turn of the century, at the same time that the two small-scale house types were being transformed into larger, more detailed versions of their earlier forms, quite different types of houses were also being built. The depressed economic conditions that had allowed only modest house building had eased by the 1890s. From this time, until the First World War, the region was swept along with the widespread prosperity of the West. Rising grain prices and the development of Brandon as a large, important city provided the rural areas of the planning district with wealth and a sense of sophistication. Not only could well-to-do farmers now build larger houses with substantial materials, but they frequently could adorn these houses with finer architectural elements.

While modest houses built before 1900 can be easily divided into two distinct types, the large residences of the later period, because of their architectural diversity, cannot be readily categorized. Still, there were a number of features that were descriptive of most large houses built after 1900. Most were 2½ storeys high, square or L-shape in plan and had large roofs with broad overhanging eaves. The interior planning was typically based either on a central or side hall plan. The central configuration was more common and a symmetrically-composed south facade appears more popular than the more informal offset format. The construction procedures used to build these large houses had become more varied since the construction of the earlier small-scale residences during the nineteenth century. Wood frame with wood siding continued to be the most popular construction method. However, usually brick, but sometimes stone or concrete became common building materials for the larger house types.

The American Four-Square House

A house at SW 22-11-17W built by Robert McKeand was a standard example of these large square-planned houses (Figure 22). The 2½ storey square block was topped by a large truncated pyramidal roof. The south facade was symmetrically composed, with three windows on the second floor that lined up above a more elaborate ground floor. Larger windows, detailed with stained glass, opened into the drawing and dining rooms of the ground floor. The finely-crafted wood porch, with its delicate wrought iron cresting was likely a later addition (Figure 23). The other sides of the house were more informally handled.

Figure 22
McKeand House, SW 22-11-17W, 1900. The south facade of this large square-planned house has been overgrown with vegetation.

Figure 23
McKeand House. The porch ornamentation on this house incorporated Eastlake-inspired details.

The internal planning of this large square house was dependent on the central hallway (Figure 24). The straightforward floor plans were enhanced by some decorative features. The more formal drawing and dining rooms had ceilings with inlaid pressed panels that were hand-painted by one of Mr. McKeand's daughters. The central staircase was also animated with distinctive newel posts and balusters. Finally, door and window frames added a light sense to the basic regularity of the design.

Figure 24
McKeand House: ground and second floor plans. The wide central hallway bisected both plans.

Figure 25
McKeand House: section. While the foundation was fieldstone, the floors of the main structure were constructed using concrete.

The McKeand house was constructed of concrete. While wood framing with wood or brick veneer were more common procedures, there was a period after 1900 when concrete was accepted as a viable construction alternative. Itinerant builders roamed the countryside with portable block-making machines and for ten years concrete buildings, usually of block, were quite popular. Instead of blocks, however, the walls of this house were constructed using 300 mm (12") thick formed concrete. The monolithic walls not only provided fireproofing but with the plaster and lath interior, they improved heat retention. This large square-planned house also contained a heating system that was common in Western Canada. Stove pipes ran vertically from the furnace through all the rooms and then to the attic where the base of the chimney was located. In this manner the metal stovepipes were used to transfer heat to the rooms.

While the size and detailing of this 2½ storey house distinguish it from the two basic small-scale residences, it was not actually the home of a rich man. The plain unpainted concrete and the sheet metal roof were improvised construction procedures. Although the porch was certainly an expensive item, most of the other architectural elements in the house, including the woodworking, stained glass and pressed metal ceilings were all common features in houses of this period. What distinguished this house from other large square-planned houses was the diversity of building materials, roof forms and ornamentation that characterized their designs. These features changed with time, and as more large houses were built, considerable architectural sophistication entered into their design.

A large elaborate frame house at SW 16-9-18W (Figure 26) had a more refined sense of design than the McKeand house. Probably built around the same time, this 2½ storey residence was more richly detailed. The exterior had a verandah extending along three sides of the main floor, twinned first floor windows, moldings and brackets under the roof overhang and grillwork surrounding the roof walk (Figure 27).

Figure 26
Roddick House, SW 16-9-18W, ca. 1910. This complex square-planned frame house has been abandoned for a number of years.

Figure 27
Roddick House. The intricate post caps on
the veranda created a sense of lightness.

Another large square-planned residence at SW 5-12-18W had a brick veneer finish that created a distinctive pattern on the walls (Figure 28). The inclusion of substantial quantities of expensive red brick indicate this farmer's status. Before 1910, yellow brick was more readily available than red brick, and the use of red brick at this time generally revealed a wealthy building. The workmanship of this expensive brick is somewhat inconsistent on this particular house, however. The quoins, especially, reveal some sloppiness. The walls create strange zigzags when seen together at the corners. However, a wrap-around verandah, now gone, probably concealed those irregularities. The brick detailing around the windows and doors is less ambitious, but more assured. The stained glass of the ground floor windows is a more elaborate reminder of the simple stained glass designs in the McKeand House.

Figure 28
McPhail House, SW 5-12-18W, 1909. This brick veneer house was altered by the removal of a wrap-around porch.

Large square-planned houses remained a popular house type in the planning district from the turn of the century until after the First World War. During this same period, however, a different large house type gained popularity. Two-and-a-half storey houses with complex L- or T-shaped plans, constructed using substantial materials, were built by the wealthier farmers in the district. Like the simpler square-planned house, the L- or T-shaped house was usually constructed of brick veneer on frame and had a large impressive roof with overhanging eaves. However, because of the complexities of the plans, these larger houses required substantive changes to the roof shape, the fenestration patterns and detail application. A large L-shaped house at SW 17-11-19W exhibits a number of these features (Figure 29). The brick walls were topped by a truncated hip roof. The contours of the walls were enhanced by a horizontal brick string course that ran around the house at the second storey level. This feature was contrasted with the more animated string course of the ground floor which formed surrounds when it rose over window and door openings.

The large square, L- and T-shaped houses marked the climax of pre-1930 house construction in the planning district. After that date, because of monetary restrictions during the 1930s, technological changes affecting roof shapes and stylistic preferences that favoured a bungalow form, more modest farm houses were usually built. The houses built before 1930, however, reveal the vitality of growth that characterized the first fifty years of settlement in the area. Within forty years house development had progressed from humble log shanties and tiny frame shacks isolated in the countryside to the impressive brick houses constructed by wealthy bonanza farmers. With the barns and other farm buildings in the farmyard the old houses in the planning district are physical manifestations of the settlement years.

Figure 29
Coristine House, SW 17-11-19W, ca. 1890. The exclusion of a verandah that was originally planned for this house provides an unobstructed view of the interesting brick detailing.

BARNS

Like the houses in the rural areas of the region, the typical stable-loft barns have undergone a considerable, and interesting, evolution over the past one hundred years. The growing size of the farm, technical advances, and changes in available manpower all affected the development of the barn in Elton-Cornwallis. The transformation of the barn in this area has not been completely regular, however. Economic conditions, especially, disrupted or prolonged certain stages in the progression from the earliest crude barns of the 1870s to the large frame barns of the 1920s. Despite these inconsistencies, some basic barn types have been identified. Four main stages in this process are discernible: during the nineteenth century: 1) Initial structures, 2) Early frame barns, and, 3) Southern Ontario-style barns; and during the twentieth century, 4) plank framed barns. The increasingly sophisticated planning, construction and decoration that characterized barn development in the planning district can be better understood with an analysis of these four barn types.

Initial Structures

The first barns constructed in the planning district would not likely be recognized as barns today. Small and low, these early barns frequently had the appearance of medium-sized sheds. Lean-tos and roughly constructed log structures comprised the earliest shelters for the few cattle and the small amounts of feed that the early settlers maintained. These could be completely separate structures, but the remaining examples suggest that, in the planning district, the livestock stable and hay storage loft were frequently united in one building. The arrangement could vary. They could either be joined in a single storey structure, or in a 1½ storey structure with a hay loft above the livestock stable. The latter was the typical arrangement of nearly all barns in Western Canada.

The very first barns built around Brandon were straightforward in design and construction. Their basic rectangular plan and simply-constructed log walls provided an adequate shelter for the material and animals inside. Any refinements of designs would have been unnecessary, and indeed, extravagant. Like their log houses, these first barns were usually considered temporary by their builders, and more pressing concerns took priority.

Only three log barns were located in the survey; one is just to the west of Douglas, while the other two are in the Brandon Hills. The barn near Douglas, which appears to be the oldest of the three, offers a fair representation of early log construction (Figure 30). The exterior walls which were built of 180 to 200 mm (7" to 8") wide logs, either peeled or roughly squared on two sides, were sheathed over with horizontal drop siding (Figure 31). The interior corners suggest that the walls were connected by dovetail joining, the same technique used in pioneer residential construction. The loft gable end walls were constructed with 40 x 80 mm (2" x 4") studs. Because the only function of the loft floor was to store feed, the careful notching used to secure the log walls was unnecessary. The loft floor was made of 50 to 70 mm (2" x 3") wide rails that were simply laid across the larger 100 to 125 mm (4" to 5") wide beams. The roof was, like the loft floor, hastily constructed (Figure 32).

The construction of log barns required additional work to produce a sound, warm structure. The spaces between the wall logs were filled with chinking, which consisted in this case, of a mortar mixture. In the loft the cracks between wall logs and gable end boards were left open to encourage ventilation. Although the thickness of the log walls provided heat retention and retarded the spread of fire, these barns took an individual a considerable time to build. The short logs that were available also limited the construction of larger log barns. Additionally, log barns had a rough pioneering appearance that many settlers considered backward and unsightly. Thus, while log barns continued to be built until the turn of the century, settlers who needed larger barns by the mid-1880s considered a different construction method.

Figure 30
Early log barn, NW 3-11-17W, ca. 1880. The framed lean-to on the left was a later addition.
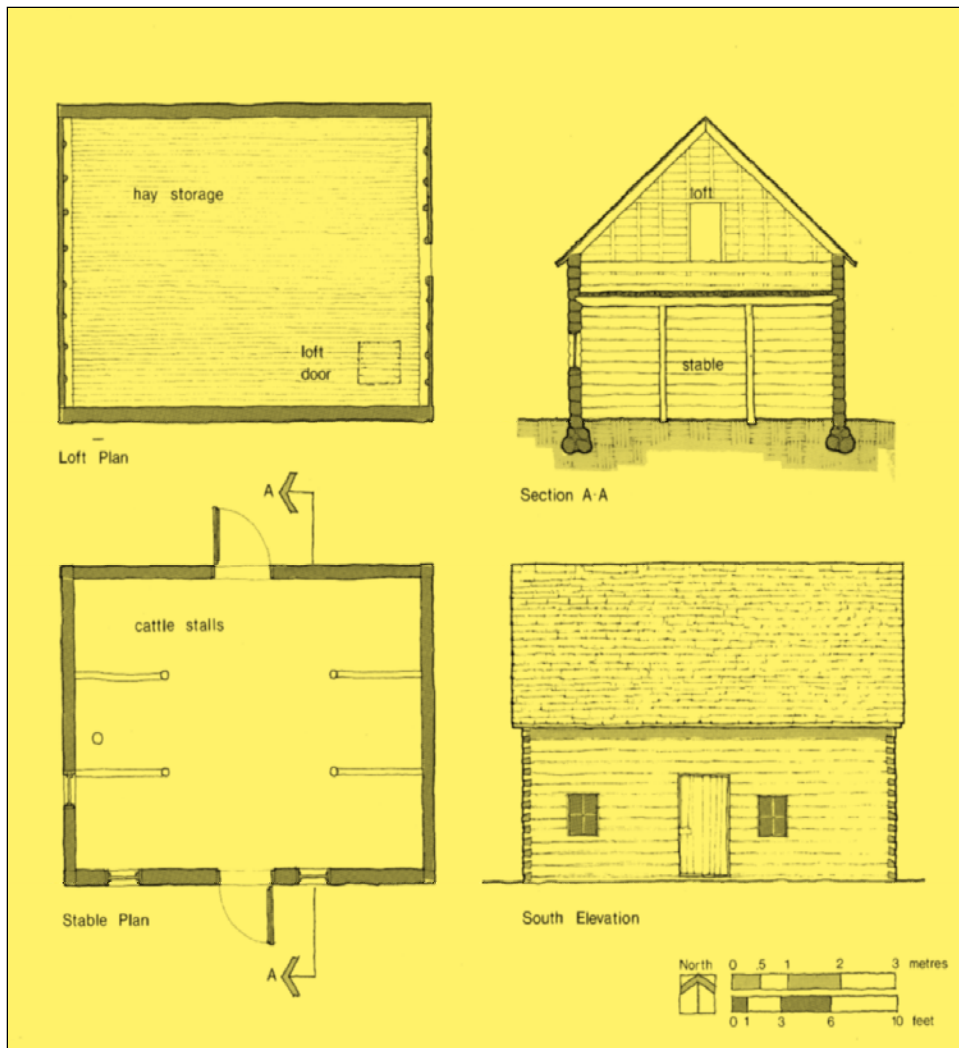
Figure 31
Early log barn, NW 3-11-17W: plans, section and elevation. The simple stable, with room for six animals, was small and poorly lit.

Figure 32
Early log barn, NW 3-11-17W. The roof construction of this log barn consisted of rough log rafters that sat in a notch in the wall sill plate and were connected at the roof peak by butt joints. Without notching, the rafter ends were cut at rough angles so they could be toe-nailed together. The rafters were covered by planking and shingles.

Early Frame Barns

Frame construction resolved some of the restrictions inherent in log construction. It became possible, by 1885, to build larger, neater barns, with nearly any plan configuration. However, in Elton-Cornwallis the variety of barn plans allowed by frame construction, although common in other areas, were not immediately employed. It was the increased size and the ease of construction, that local settlers found especially attractive.

The same framing procedures used in house construction proved just as effective for early frame barns. Milled 40 x 80s (2" x 4"s) or 40 x 150s (2" x 6"s) were arranged as frames to form the wall skeletons which were, in turn, covered with horizontal drop siding. The floors and roof were constructed in the same manner as their residential counterparts. Although these new framing procedures altered the general appearance of barns in Elton-Cornwallis, there were other features that transformed the entire character of these buildings.

While log barns were usually built on rough stone footings, frame construction required well-built level foundations for a neat, durable structure. In many early frame barns the roughly-dressed fieldstone foundation rose seven feet above grade, creating the walls for a ground floor stable. The foundation wall was frequently built into a rise in the terrain, permitting access to the barn from two levels: one side of the barn from the higher ground, into the loft, and from the other side into the ground floor stable.

Barns with such access at two levels were known as bank barns and a few variations were common in southern Ontario during the nineteenth century. The two most common forms of bank barns were either a simple two-storey rectangular building or else a two-storey building with loft overhanging the yard floor on the side of the barn away from the hill.

The bank barn with the loft overhand was not common in the region. The typical bank barn in Elton-Cornwallis was oriented east-west, with the stable access to the south and the loft access up the ramp, from the north. This orientation created a stable yard on the south side which was warmed by the sun and sheltered from the prevailing north-west winds. In addition, this layout created better air movement in the barn. Vents in the loft permitted natural flow-through ventilation, but because of the earth berm against the north wall, the stable was more difficult to ventilate naturally. There was one other advantage to the location of a barn in a south-facing hill: because cattle and horses were usually separated, this layout permitted the location of two distinct entrances on the same side into the barn. All of these inter-related planning and construction developments gave the new framed bank barns in the planning district a sophistication that was difficult to achieve with logs.

The original portion of a barn at SE 4-11-19W, in Cornwallis, is an interesting example of an early framed bank barn (Figure 33). Built by Robert Hutton in the 1880s when this kind of barn was most common, its planning and construction illustrated general bank barn characteristics (Figure 34).

The small fieldstone stable was simply planned. It was divided into two sections: one for horses, one for cattle. Two separate doors on the south permitted access for six horses into one side and ten or twelve cattle into the other. The loft was also straightforward. While it has been partitioned into small rooms, it was originally an open space with a drive-in central alley, flanked by two storage areas.

Figure 33
Hutton Barn, SE 4-10-19W, ca. 1885. The original bank barn, from the northeast, shows the hillock that provides upper level access to the loft. This section has square nails, a feature helpful for dating nineteenth century construction.

Figure 34
Hutton Barn: cross section of the original barn and elevation of the barn addition. The north ramp to the loft and lower access to the stable that were characteristic of early bank barns are evident here. The typical framing procedures in the loft consisted of stud walls sheathed with horizontal siding and rafters covered with planks and shingles. The rafters were stabilized with a horizontal connecting strut nailed about 0.6 m (2') below the roof peak.

Southern Ontario-style Barns

Small framed bank barns continued to be built until the 1890s. With a small herd of cattle and a limited number of horses, it was not necessary to build a larger structure. Before the turn of the century there were, however, a number of ambitious farmers in the planning district who sought to enlarge their operations. The economic situation in the west had changed considerably by the 1890s and the sudden prosperity encouraged farmers with sufficient capital to expand their operations. With larger herds of cattle and more plough horses, small framed bank barns were hardly adequate for their needs.

Many farmers simply added a larger frame structure onto the smaller original barn, in the fashion of the Hutton barn. Others, however, erected completely new buildings. Because of the structural complexities involved in building a large barn, it was difficult for settlers to design their own plan. When considering the kind of large barn they would build, it was reasonable that the farmers of the planning district would look to their own heritage for precedents. Most settlers in the Brandon area had originally lived in a few counties in southern Ontario and within these counties a very distinctive banked barn, which came to be called the southern Ontario style barn, was prevalent (Figure 35). In the planning district two distinct sizes of the southern Ontario style barn were built. The smaller barns were generally constructed before 1900; more substantial barns, which still retained basic southern Ontario features, were usually built after 1900.
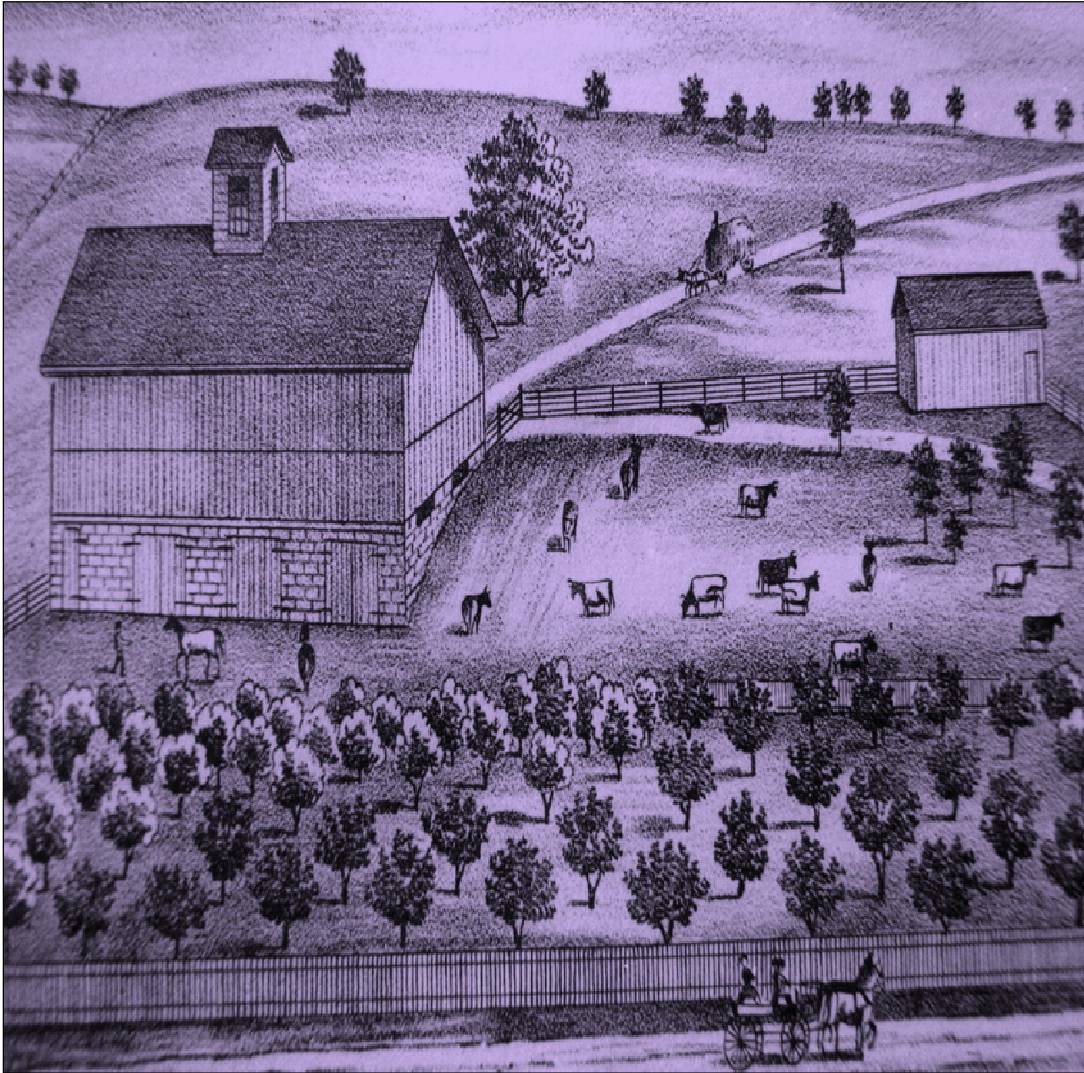
Figure 35
A southern Ontario style barn, built during the 1860s in the county of Hastings. (Illustrated Historical Atlas of the Counties of Hastings and Prince Edward.)

Besides the north ramp, stone stable and east-west orientation that characterized the earlier bank barns, the typical southern Ontario style barn was distinguished by a heavy internal post-and-beam network, mortise-and-tenon joinery and vertical board-and-batten siding. Large posts and beams were joined in a straightforward fashion (Figure 36). Two hundred-by-two hundred millimeter (8″ x 8″) posts extended from the loft floor, either to the height of the exterior walls, or to an intermediate point between the wall and the roof peak. Plates and purlins connected these posts respectively at the top, and supported the 40 x 150 (2″ x 6″) rafters. Stabilizing beams, also called girts connected all the posts at intermediate levels. Two beams rarely joined a post at the same point; the mortise notches cut in the posts were staggered vertically or laterally so that beam tenons were not aligned and the post was not weakened. Details like the butted ridge joint, the shoulder cut rafter seat, the post and girt connection and the loadbearing scarfed joint typified most southern Ontario construction. The mortise-and-tenon joins that were used for most of these connections, including the diagonal sway bracing between posts and beams, were secured with wooden pegs.

This system of posts and beams in the loft was generally referred to as bentwork. Each set of posts and beams running across the width of the building was called a bent. Barn sizes were frequently expressed in terms of the number of bents; large barns could have seven or eight bents, small barns typically had four bents. The Ferguson barn at SE 30-11-18W, with four bents is a very good example of the smaller southern Ontario style barn (Figures 37 and 38). The planning of this barn, like the earlier framed bank barns, was based on an east-west orientation that permitted dual stable access from the south. The loft, entered from the north hillock, had a central drive-in alley with flanking storage bins (Figure 39). The elements of the bentwork in the Ferguson barn consisted of 250 x 250 (10″ x 10″) posts, 180 x 180 (7″ x 7″) connecting girts and 40 x 80 (2″ x 4″) diagonal braces (Figure 40). All of these connections were secured with straightforward mortise-and-tenon joins (Figure 36(c) and 41).
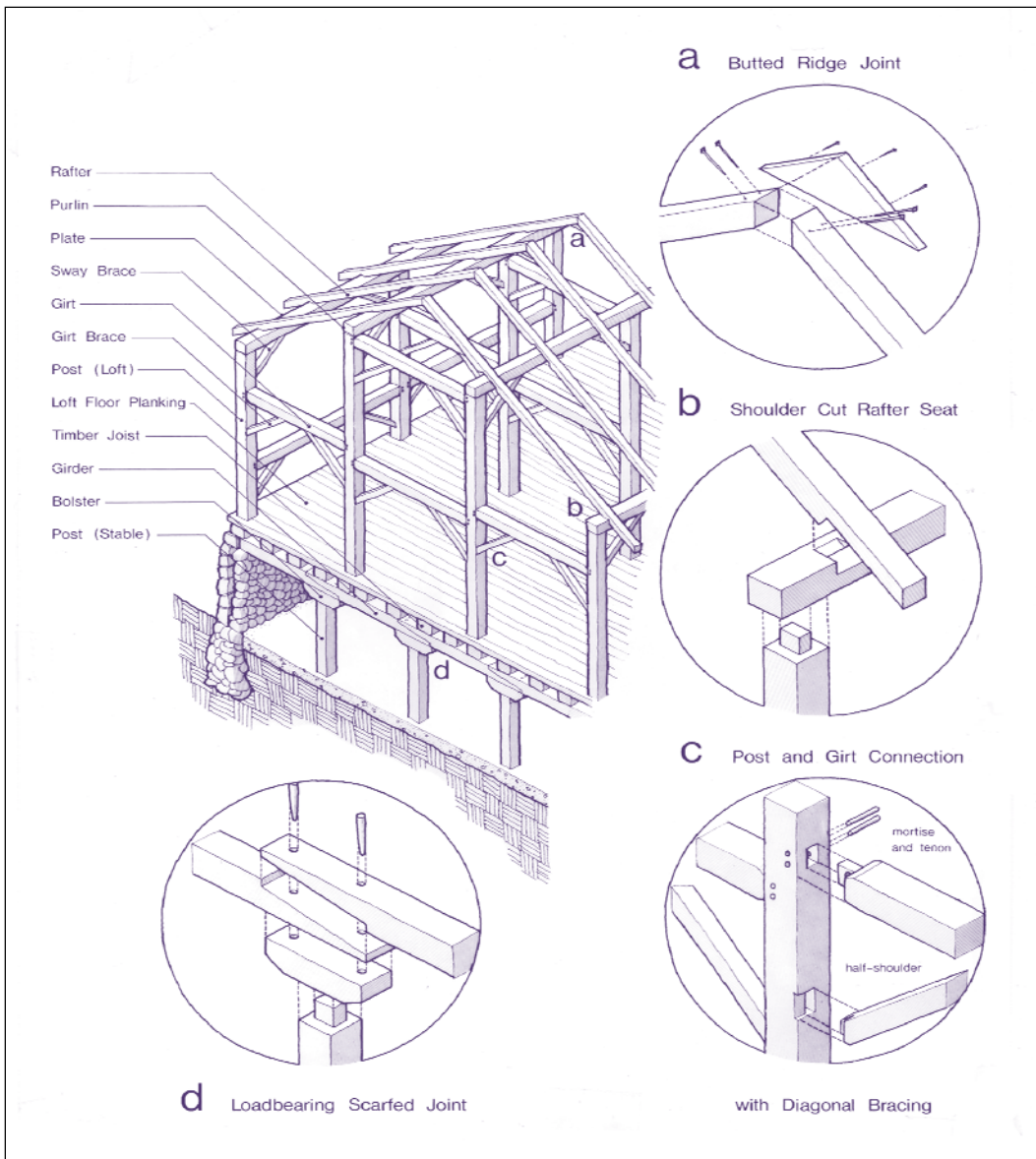
Rafter
Purlin
Plate
Sway Brace
Girt
Girt Brace
Post (Loft)
Loft Floor Planking
Timber Joist
Girder
Bolster
Post (Stable)

a Butted Ridge Joint

b Shoulder Cut Rafter Seat

c Post and Girt Connection

mortise and tenon

half-shoulder

d Loadbearing Scarfed Joint

with Diagonal Bracing

Figure 36
The construction procedures used for a typical southern Ontario style barn featured some interesting details.

48

Figure 37
Ferguson Barn, SE 30-11-18W, ca. 1890. This northwest view shows the hill that permits access to the loft. The location of the internal structural members can be discerned by the jogged horizontal joints in the siding.

Figure 38
Ferguson Barn. The southwest view features the stable entrances at the ground level, the fieldstone foundation walls and the vertical board-and-batten siding.
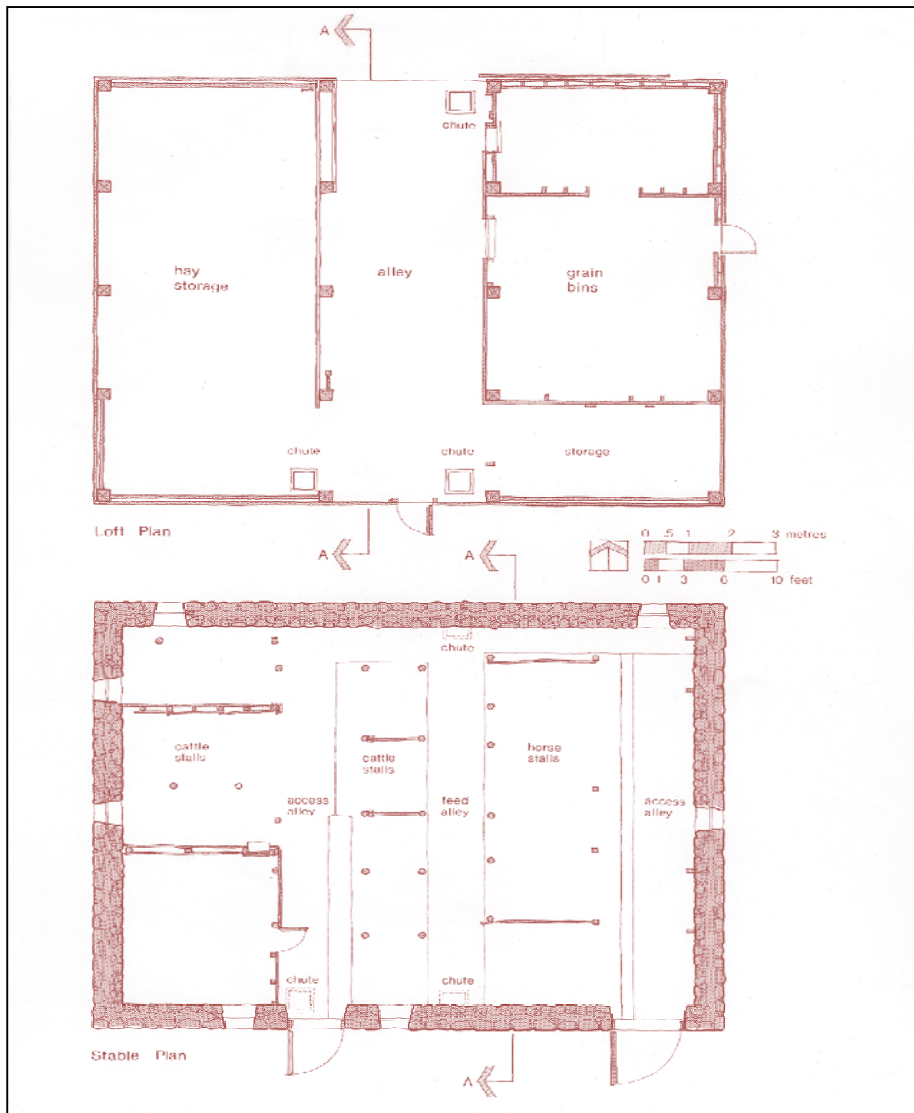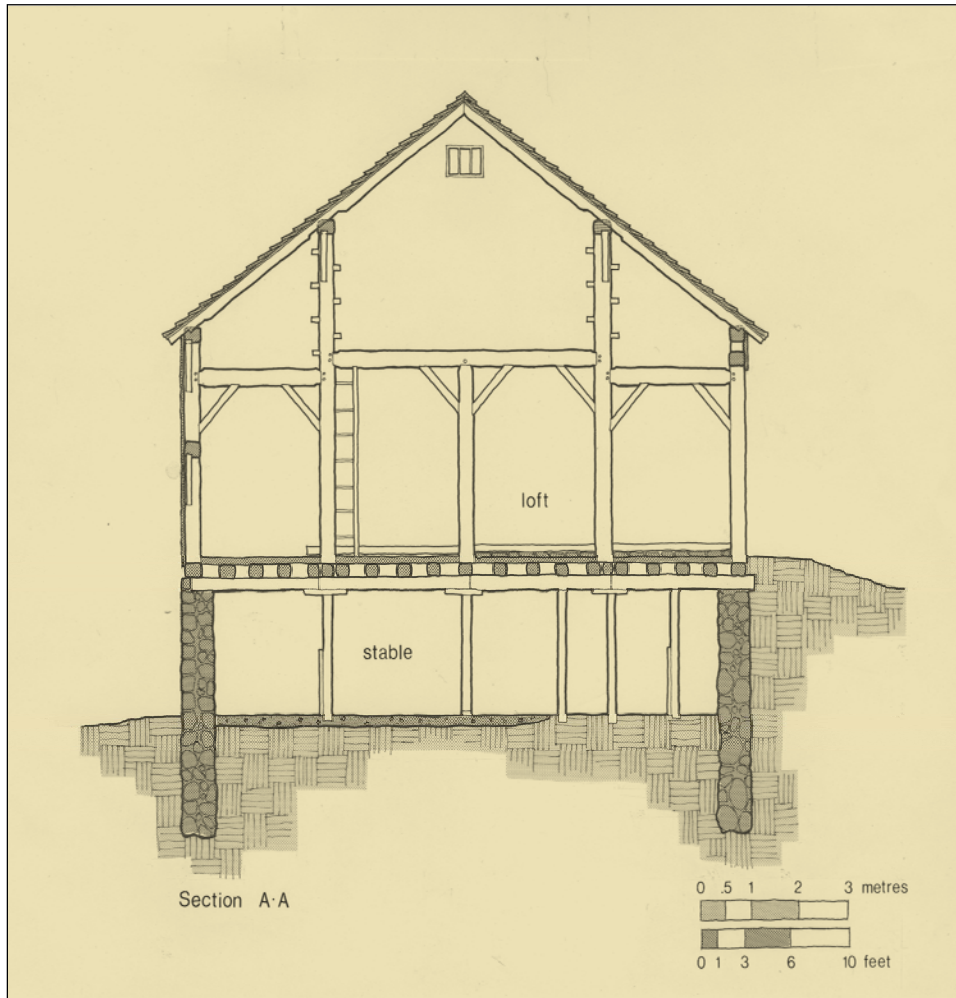
Figure 39
Ferguson Barn: loft and stable plans.

50

loft

stable

Section A·A

0 .5 1 2 3 metres

0 1 3 6 10 feet

Figure 40
Ferguson Barn: section. This cross section shows the access at two levels, the loft bentwork and the fieldstone walls. The pegs on the two interior posts provided access to the upper areas of the loft.

Figure 41
Ferguson Barn. Typical post, beam and diagonal brace connection in the loft. The staggered beams were connected to the post with mortise-and-tenon joints. The notched beams created a more secure structural connection as well as an interesting decorative feature.

This cluttered and heavy support construction in the stable was required because of the insecure structural relationship between the loft and the stable. The situation was somewhat different at the junction of the loft walls and the foundation walls. The loft posts around the perimeter sat rather precariously on a wooden sill plate that was simply laid atop the stone walls. While basic construction shortcomings like these may have warranted the criticism levelled against them by later barn designers, these early southern Ontario style barns did, nevertheless, contain interesting features including ingenious joinery and rationalized internal planning.

Small southern Ontario style barns continued to be built in Elton-Cornwallis for a number of years after 1885. However, just before the turn of the century, as agricultural productivity increased, larger barns became a necessity, and more substantial structures began being erected.

While southern Ontario style barns relied on the same orientation, internal layout and construction procedures that characterized their smaller predecessors, certain developments changed the nature of the new barn. A gambrel roof, which provided a larger loft capacity, replaced the moderately-pitched gable roof of earlier southern Ontario style barns (Figure 42). Instead of relying on a hill for access into the loft the new barns were generally accessed by a built-up earth ramp on the north side. Because these barns required a larger work force for their construction, barn-raising bees were often organized. Local neighbours volunteered their time and gathered at the site, where, under the direction of a carpenter, they constructed the stable walls and structural frame (Figure 43).
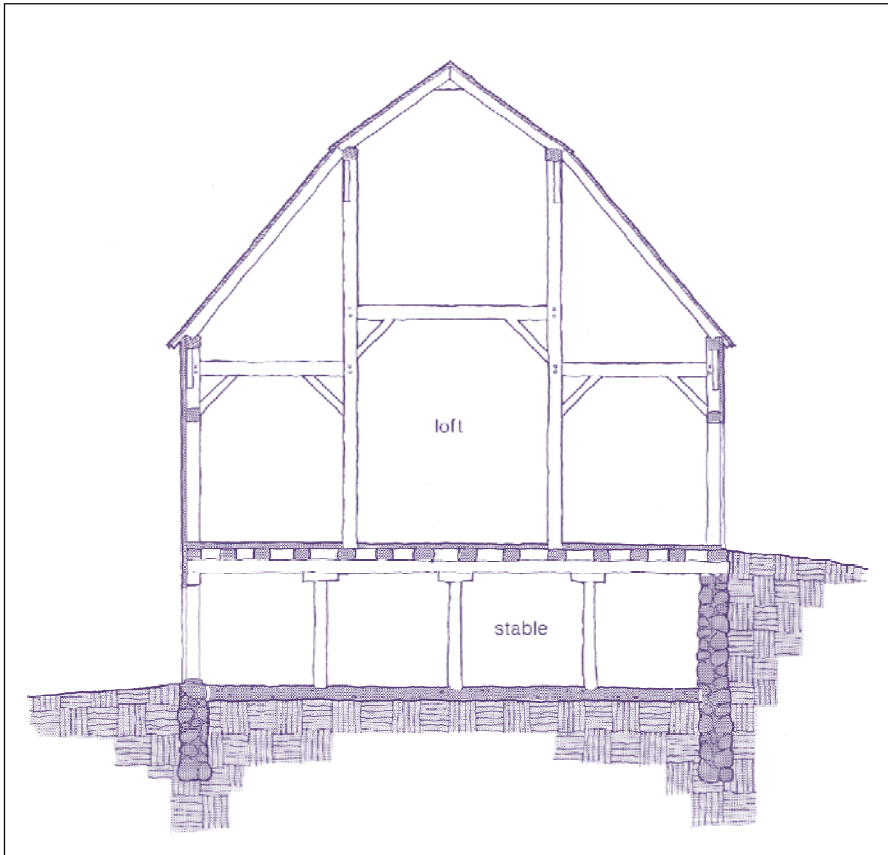
loft

stable

Figure 42
Typical gambrel-roofed southern Ontario style barn. The central bay was narrower and the two centre posts were taller than barns with a gable roof. The rest of the barn was constructed and planned like earlier southern Ontario style barns.

Figure 43
A barn-raising near Douglas nears completion of the structural skeleton on this six bent barn. The long built-up ramp was covered with large logs. The planking used for the siding and the roof can be seen inside the barn, on the left. The siding and roofing were usually finished by the farmer, his sons and hired help. (F. Willmott)

The larger loft and stable areas in these new barns required different plan organizations. The loft plan of the typical small southern Ontario barn was enlarged, in the larger barn, by an additional alley and adjacent storage area. The stable was usually doubled in size and frequently included a root cellar and foaling and calving pens against the north wall.

A number of these large southern Ontario style barns were built around Brandon before 1920. The McCallum barn, built just at the turn of the century, is a very interesting example of the mature southern Ontario style barn (Figures 44 and 45). The bentwork in the loft and the construction of the stable reflect the basic similarities to the Ferguson barn. The planning, however, of the McCallum barn represents an advance over the Ferguson barn. The access alleys divided the large loft into three storage areas while, in the stable, the stalls were arranged into a neater grid (Figure 46). Although more animals could be housed in the McCallum barn, the individual stalls were not appreciably better than those in the Ferguson barn. The addition of the root cellar, however, made the McCallum stable more useful. The building, which has been dismantled, offers an excellent view of typical southern Ontario barn construction (Figure 47).

The roof of the McCallum barn was not actually typical of the mature southern Ontario style barn. While most large southern Ontario style barns in Elton-Cornwallis had gambrel roofs, the McCallum barn was designed with a hipped gable roof. Both of these roof types provided a more aerodynamically efficient form than the simple gable of the earlier southern Ontario style barns. The gambrel, however, was considered by many barn builders to be the better roof profile as it provided a larger loft capacity.

Figure 44
McCallum Barn, SW 3-11-18W, 1900. This northwest view shows the built-up north ramp and the characteristic gable end jog in the vertical sheathing. This jog, the reverse of the Ferguson barn jog, was required by the slightly different bent arrangement.
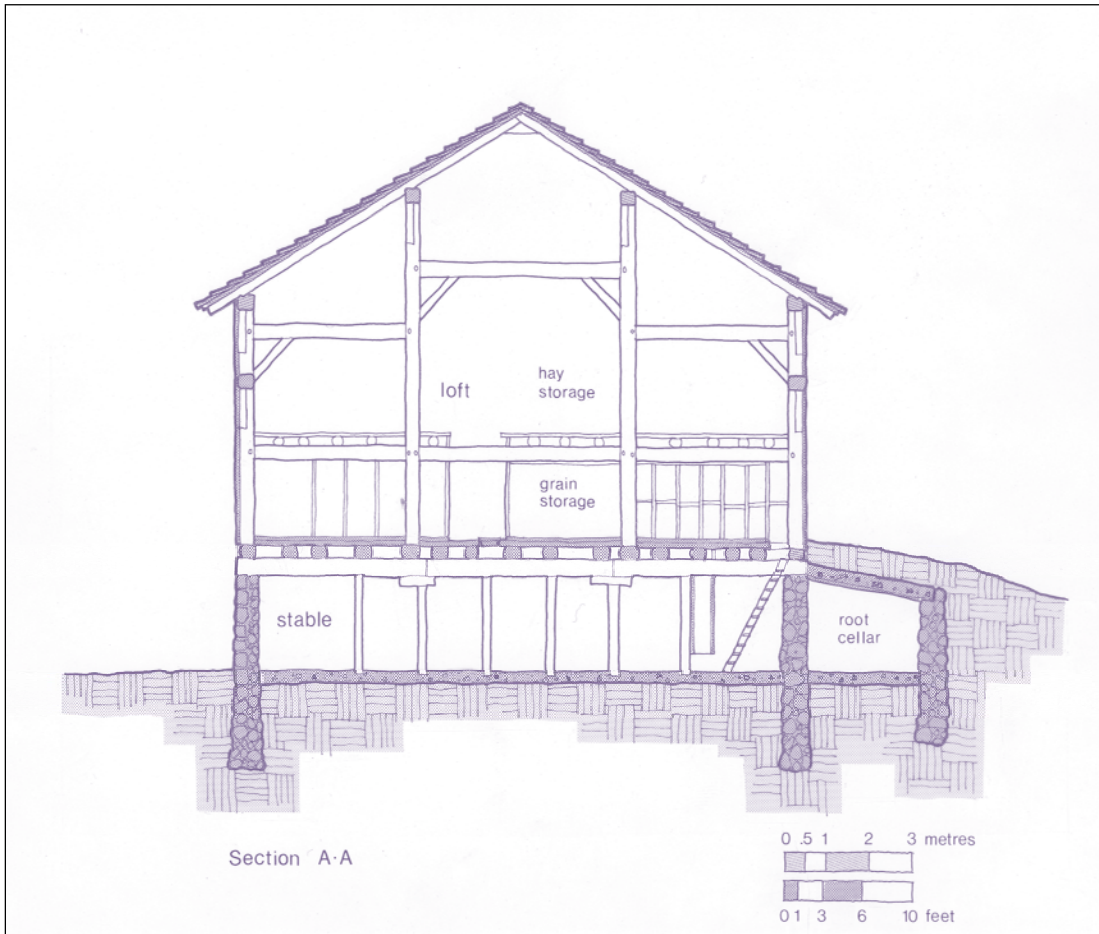
Figure 45
McCallum Barn: section. This cross-section shows the heavy fieldstone foundation walls, the root cellar under the built-up ramp and the loft bentwork.
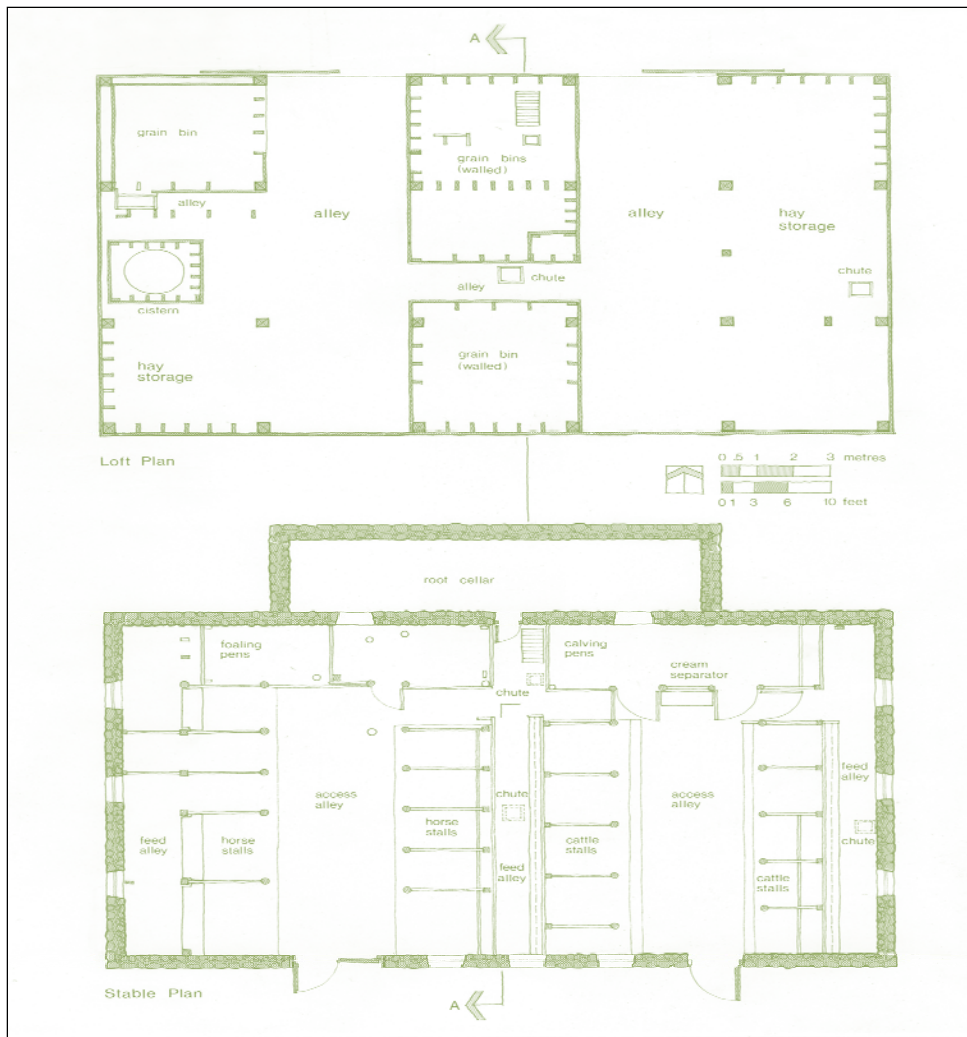
Figure 46
McCallum Barn: loft and stable plans

59

Figure 47
McCallum Barn. The vertical siding re-moved from the south side of the barn reveals the heavy timber framework.

Barn Transition

Despite some irregularities in construction, the McCallum barn represents the excellence that large hand-crafted southern Ontario style barns had attained in the planning district. By the turn of the century, however, the specific failings of structure and planning that affected the McCallum barn were being assessed by barn builders. The structural continuity between the stable and the loft was improved in many barns while in others the standard north ramp was made smaller to admit some light and improve ventilation in the stable (Figure 48). By the turn of the century other technological advances changed the nature of barns in the planning district. New devices, like hay slings, provided an easier, more economical way of moving feed around in the loft (Figure 49). Paralleling this development was the decline in the importance of the horse. As mechanized devices began replacing horsepower, the whole barn could be devoted to cattle production which, by 1910, was becoming a viable part of the agricultural economy in the planning district. A longitudinal barn with a long central alley became as common as the standard southern Ontario layout.

The modestly-sized Kneeshaw barn, built in 1905 at SW 21-9-17W shows the introduction of some of these developments (Figure 50). The southern Ontario style ramp was excluded and access into the stable was gained through two doors in the north or two doors on the south (Figure 51). The construction of this barn resolved the discrepancy between loft and stable connections (Figure 52). While construction details reveal some dependence on southern Ontario joinery the bentwork was simplified by eliminating some horizontal members. This development permitted easier movement in the loft.

Figure 48
McPherson Barn, NE 9-9-18W, 1923. The narrow north ramp on this barn allowed light and air into the northern half the stable. The typical southern Ontario stone stable walls were replaced with a lighter sheathed frame
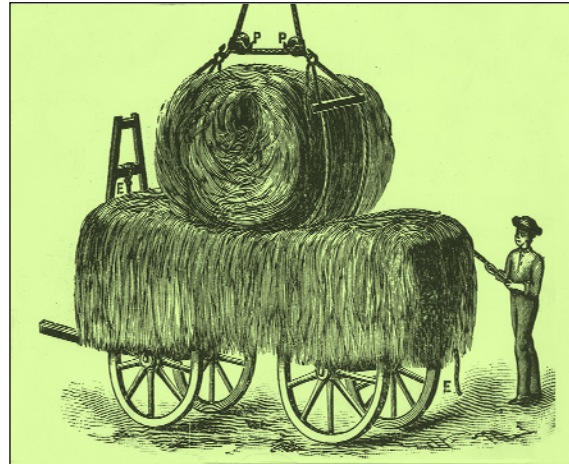

Figure 49
A hay sling, which was connected to a moveable pulley attached to a track in the roof peak, could distribute hay to various parts of the loft. (Provincial Archives Manitoba.)

Figure 50
Kneeshaw Barn, SW 21-9-17W, 1905. This view from the southeast shows the hay sling's extended track which was added after the barn's construction. The windmill was used to provide power for moving and crushing feed inside the barn.
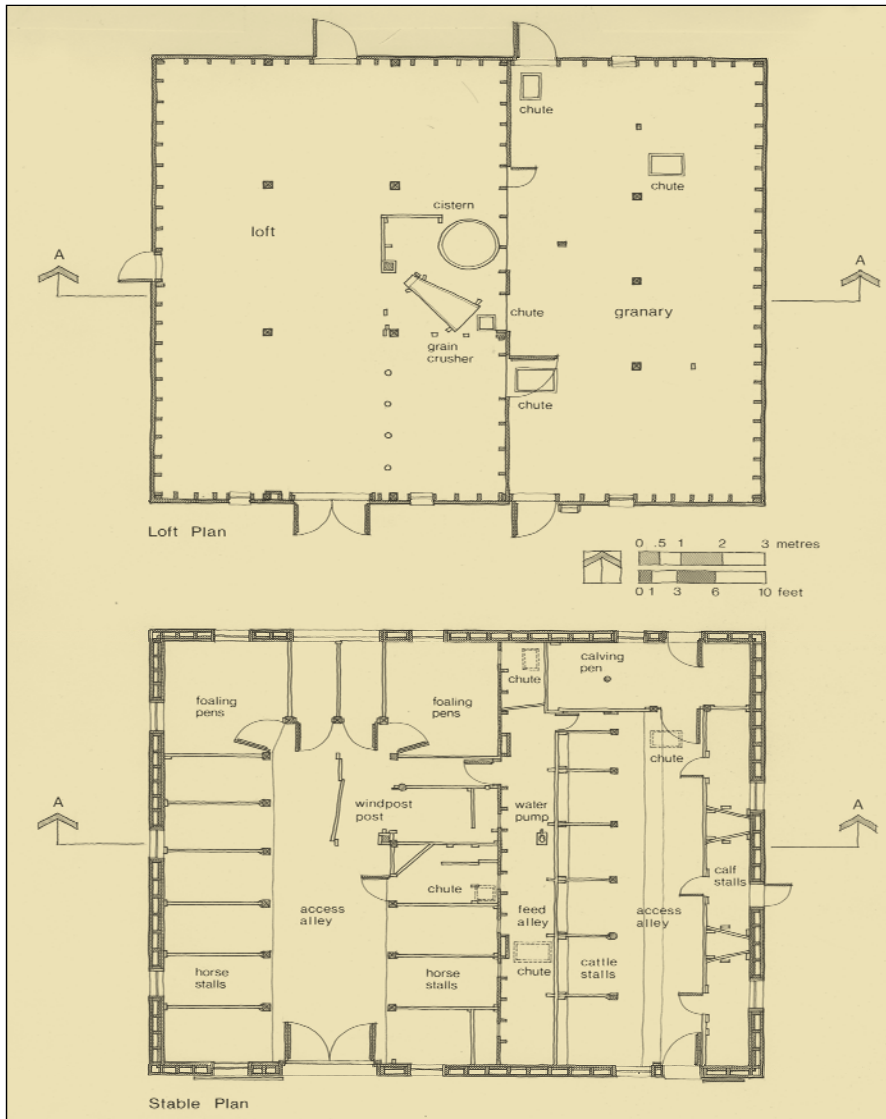
Figure 51
Kneeshaw Barn: loft and stable plans

64

labels within figure: loft, cistern, grain bin, cattle stalls, alley, cattle stalls, pump, alley, well, Section A·A
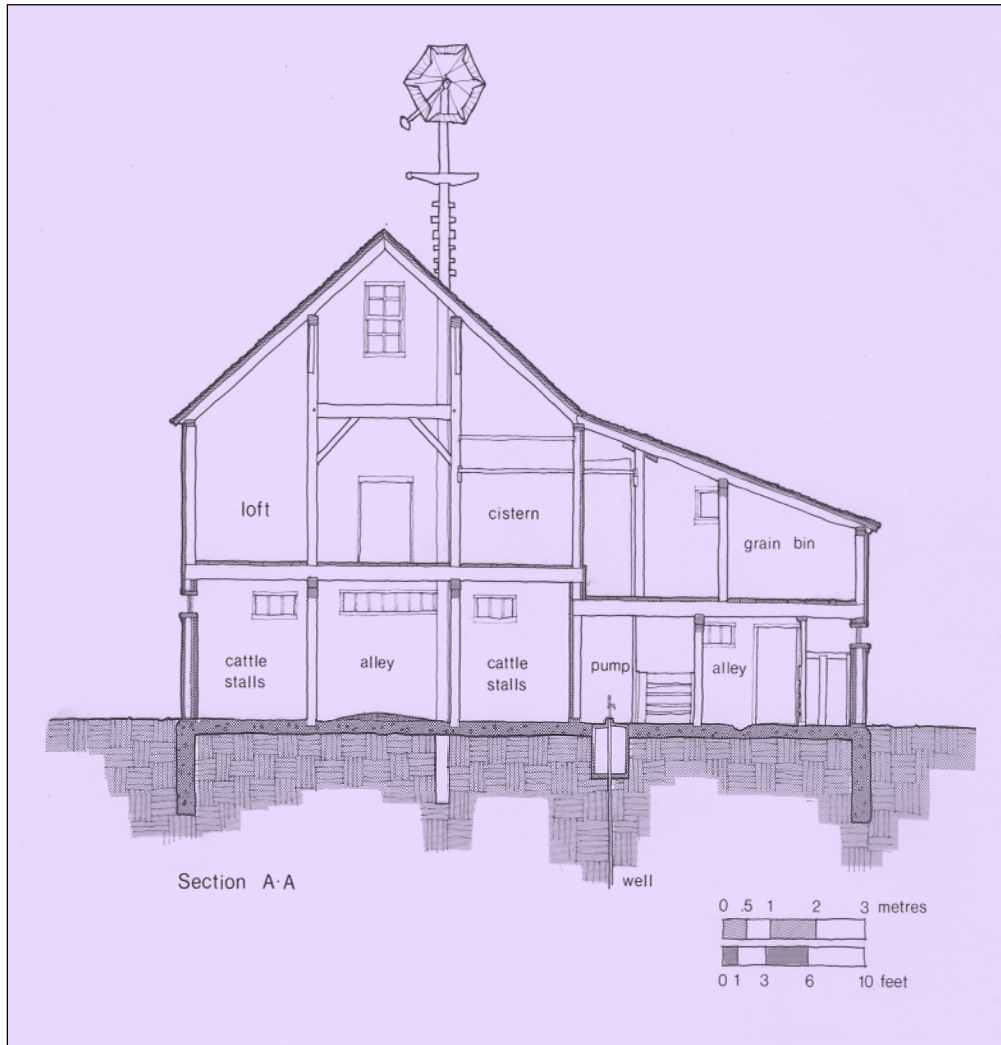
0 .5 1 2 3 metres
0 1 3 6 10 feet

Figure 52
Kneeshaw Barn: section. The posts from the loft extended directly in a line to the stable posts.

In the Brandon Hills the settlers from Nova Scotia introduced a structural system that also created a more open loft (Figure 53). Each bent was connected to the next only by a purlin; the welter of horizontal connectors that provided external wall and loft stability in southern Ontario style barns were excluded in Nova Scotia style barns (Figure 54). The simpler bent arrangement permitted much easier movement in the ship-like loft. However while hay slings were often incorporated inside these barns, there was no easy source of access into the loft. The southern Ontario style north ramp was not included with Nova Scotia style barns and grain had to be thrown into the loft through 1200 x 1200 (4' x 4') hatch doors.

Figure 53
Roddick Barn, SE 17-9-18W, 1904.

Figure 54
Roddick Barn. The builders of Nova Scotia style barns concentrated the main structural supports away from the walls, increasing internal stability and freeing the external walls for frame construction.

Plank-framed Barns

While all the advances mentioned produced slightly more efficient barns than southern Ontario designs, some form of heavy loft bentwork was still required in these later buildings for structural stability. This situation was dramatically altered, however, with the introduction of plank framing (Figure 55). This system not only permitted the construction of a roof without the use of heavy, and increasingly costly, timber posts, but the bracing profiles of the trusses created a gambrel roof shape.

Barns built with plank framing were ambitious in design and scale. The Shields barn, built from 1910 to 1912, at NW 8-9-19W, reveals the advanced state that barn building in the Brandon area had attained (Figure 56 and 57). While the barn was built with concrete stable walls and was not planned with a long central alley, the huge open loft was very modern (Figure 58). Constructed using a series of plank trusses, the voluminous space in the loft allowed a hay sling complete freedom of movement along a track in the roof peak (Figure 59). Hay and grain could be lifted from wagons on the east side and shifted easily through any part of the loft. The Shields barn was built as a physical and technical rival to the new livestock barn at the Brandon Experimental Farm. The barn at the experimental farm burned in 1916 and the Shields barn now stands as one of the few remaining large truss-roofed barns in the Brandon area.

Farmers who built barns after the First World War usually relied on the same internal organization and construction procedures that were developed in earlier structures. Because the new barns were generally built exclusively for dairy cattle the longitudinal stable plan become predominant. New mechanical devices like the extended hay sling changed the profile of the barns, while new roof shapes were developed with later technological advances. However, it was the gambrel roof, the longitudinal stable alley, the hay sling and the loft framework developed for earlier barns that provided the basis for many later barn designs (Figure 60).
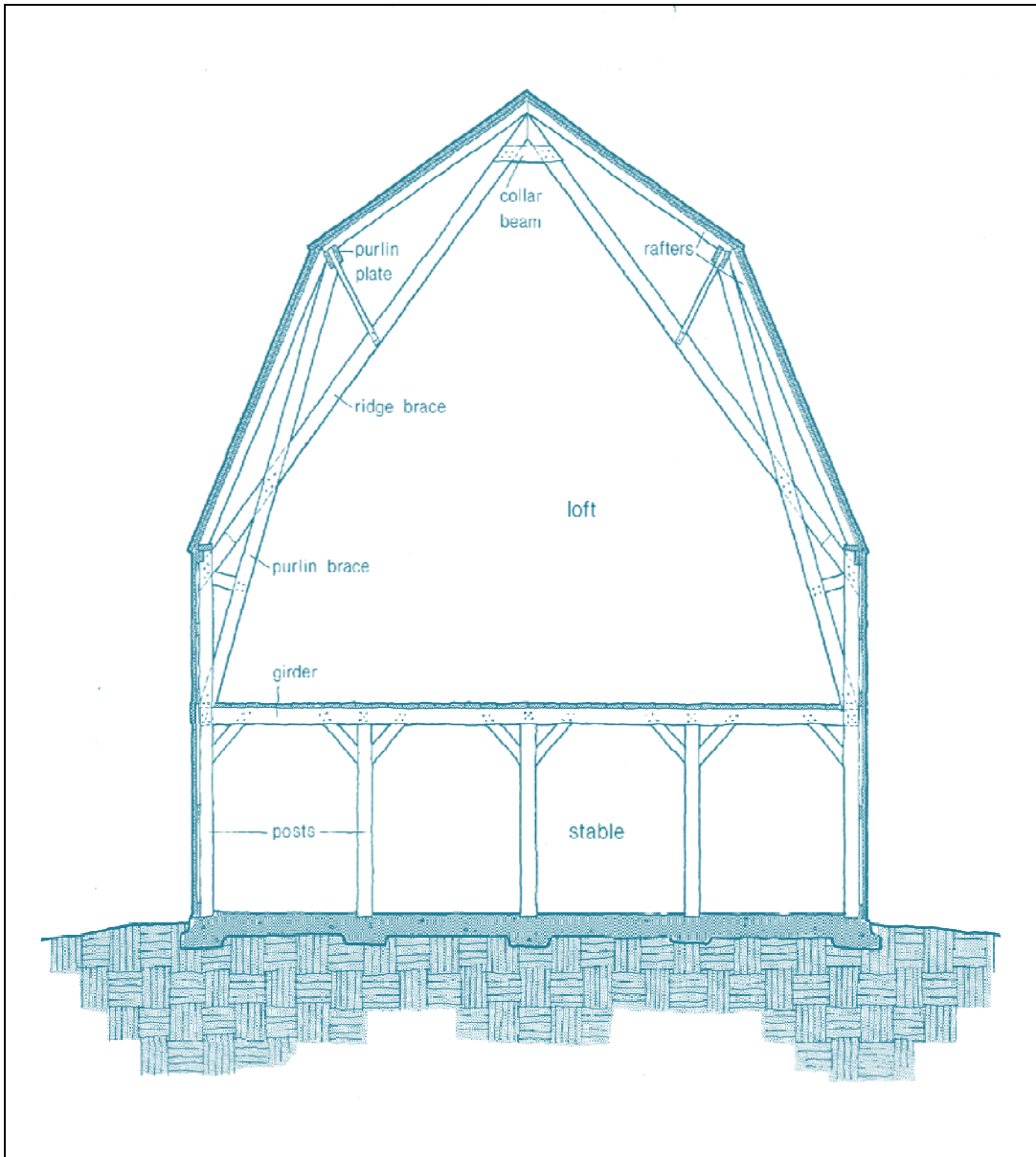
Labels in figure: collar beam, purlin plate, rafters, ridge brace, loft, purlin brace, girder, posts, stable

Figure 55
Plank-framed gambrel-roofed barns were built around the turn of the century.

Figure 56
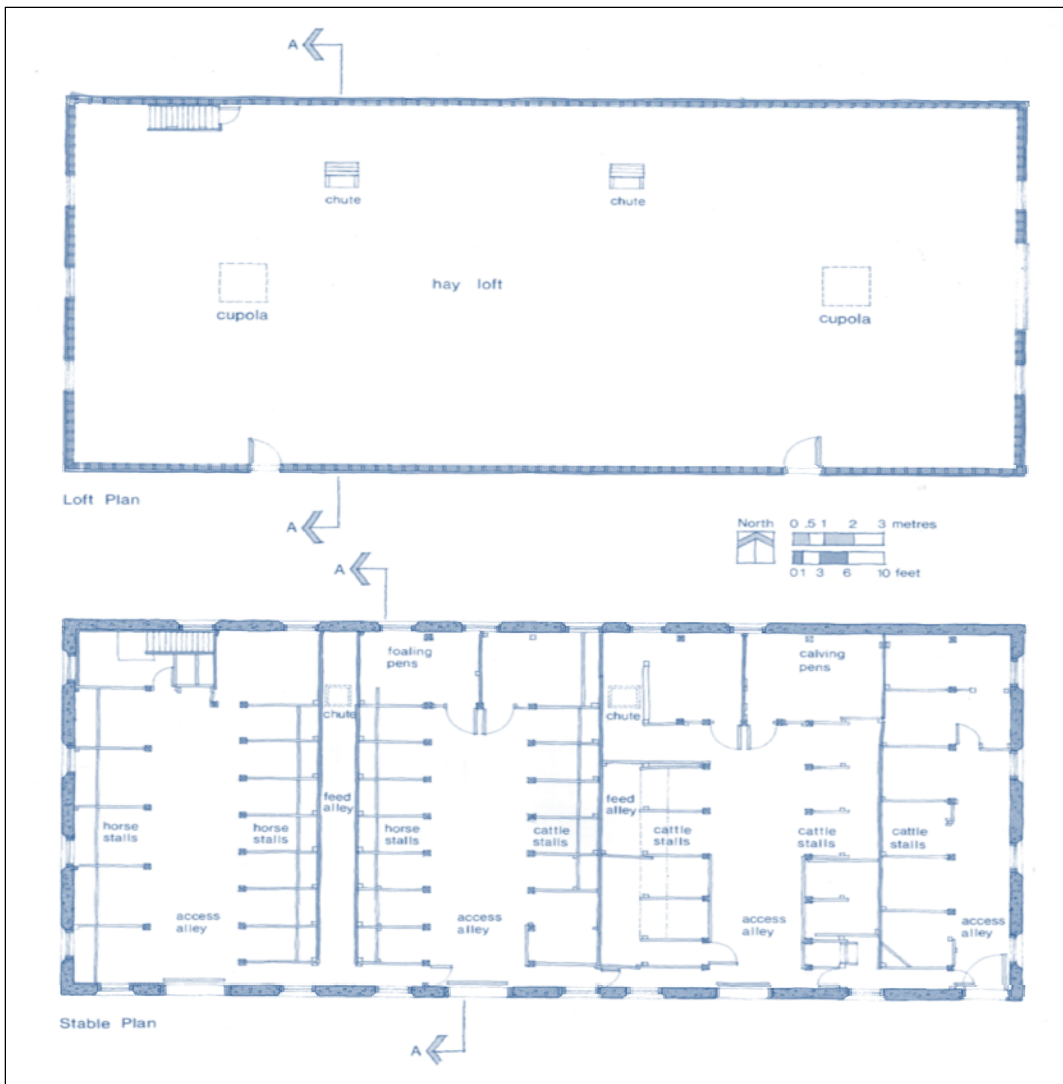Shields Barn, NW 18-9-19W, 1910-12: southeast view.

Figure 57
Shields Barn. Without the necessity of supporting a heavy loft network, the spacious stable was well organized; the western section was for a few horses, the two eastern sections were for cattle.
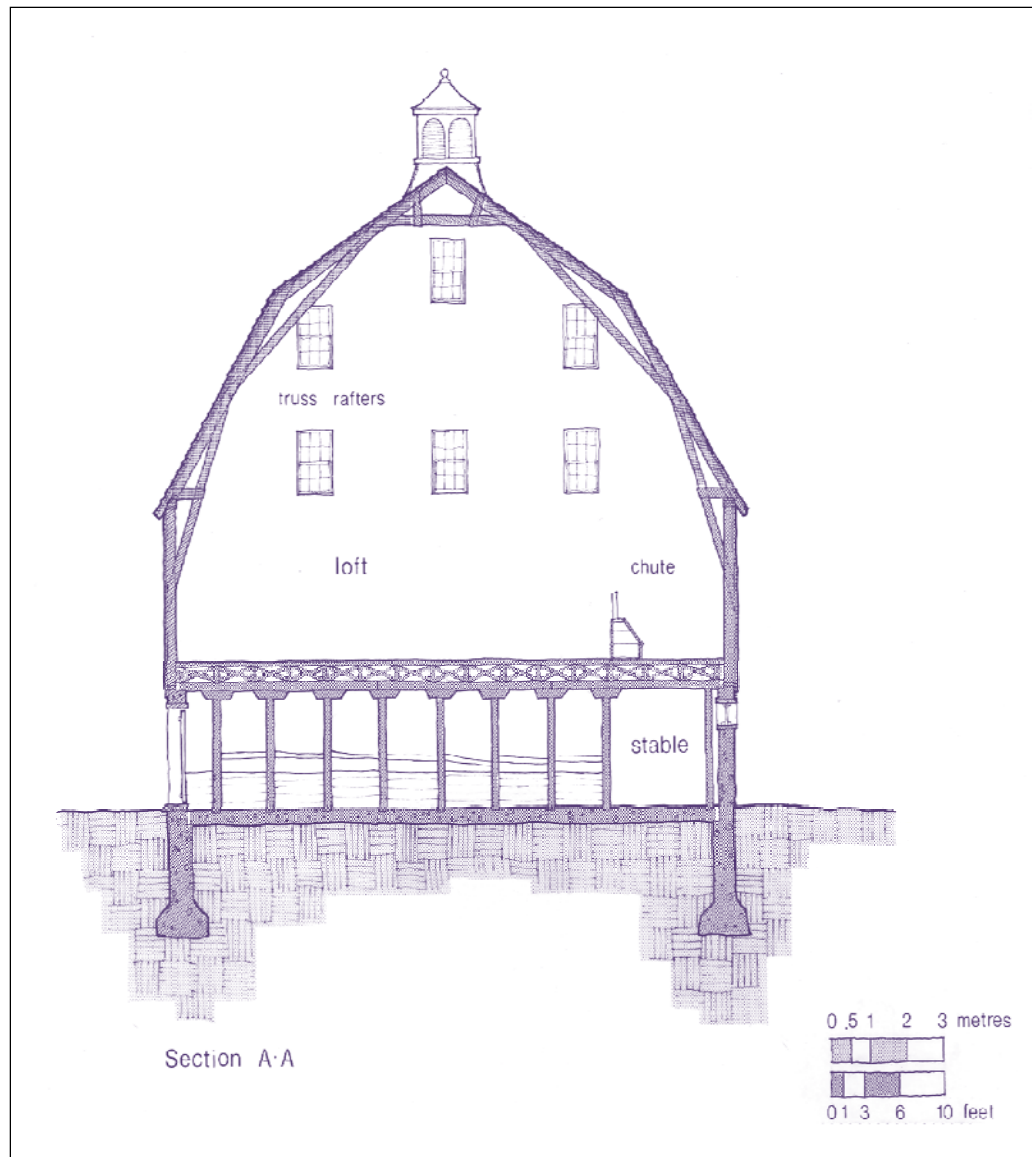
truss rafters

loft   chute

stable

Section A·A

0 .5 1 2   3 metres

0 1 3 6   10 feet

Figure 58
Shields Barn. The hay sling would be rolled out along a track in the roof peak to a point a few feet beyond the east gable end. From this position hay and grain could be hoisted through a huge door into the loft and deposited anywhere inside.

Figure 59
The extended hay sling required the addition of a roof peak that provided protection for feed lifted up to the loft. Loads could be pulled inside more easily through the large loft doors.

Figure 60
Hamilton Barn, NW 34-10-19W, 1949. The roof of this barn was constructed with laminated trusses that were built in Souris.

OTHER FARM BUILDINGS

While houses and barns in the region have undergone greater architectural and constructional change during the past hundred years than have smaller farmyard buildings, the latter are not without interest. Technical developments have caused interesting changes to these buildings, especially the grain elevators.

Granaries and Elevators

As the farmyard developed, granaries were added to contain the growing quantities of crops. One frame granary at NW 13-9-19, built around 1890 is of typical size and form for the period (Figure 61). Its construction also is typical. The 40 x 80 (2" x 4") building frame was sheathed on the outside with horizontal drop siding, and on the inside with planking. This construction procedure not only produced a sturdier building in which to store grain, but it also created a smooth interior that was easy to clean.

Figure 61
Granary, NW 13-9-10W. The hatch in the gable end was used for loading and unloading the grain. Bags of grain were usually pitched from a wagon up to the opening.

Larger granaries were slightly more complex. Instead of wagons pulling alongside the building and bags being pitched through a small door, wagons were pulled into an alleyway in the granary. From here, loose grain could simply be shoveled into high-walled bins on either side of the alley. A granary at NE 32-9-19W, built in 1892, shows this development (Figure 62).

Figure 62
Lowe Granary, NE 32-9-19W, 1892. The simple drive-in granary was altered by the addition of a small belt-driven bucket elevator, whose distribution head projects through the roof, a small feed mill and shed-roofed storage areas on each side.

Grain elevators began to replace the simpler granaries, particularly in south central Elton, around the turn of the century. While the two earlier types of granary relied on manual labour, grain elevators contained a system that mechanically distributed grain to the bins. A leg, which consisted of a series of small buckets attached to a vertical conveyor belt, lifted the grain up to a distribution box where it was dispersed to the individual bins. The McCallum elevator, built in 1904 at NW 3-11-18W, was a particularly good example of a grain elevator (Figure 63). A central corridor separated the building into two storage areas that were each subdivided into three bins (Figure 64). The capacity of the individual bins was 43,640 liters (1200 bushels). Above the alley were located two smaller slant-floored bins (Figure 65). The capacity of the west bin was 15,550 liters (400 bushels), while the east bin could hold 9090 liters (250 bushels). Wagons were pulled up the west door where grain was dumped into the lower grain box. From there it was lifted up the two elevator legs to the distribution box. Spouts connected to the distribution box directed the grain into one of the eight bins.

Figure 63
McCallum Elevator, NW 3-11-18W, 1904. Grain was retrieved from the spouts that project from the walls.
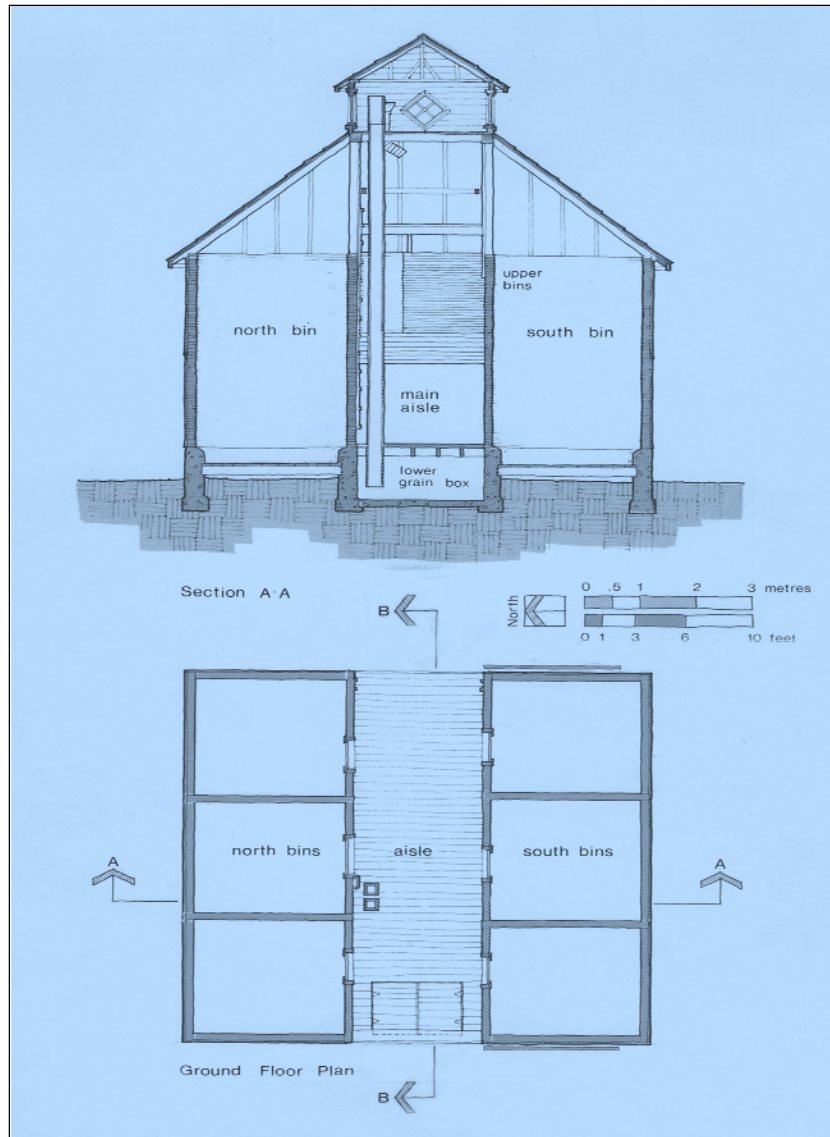
Figure 64
McCallum Elevator: ground floor plan and section. The cribbed bin walls were constructed of stacked 40 x 80s (2" x 4"s).
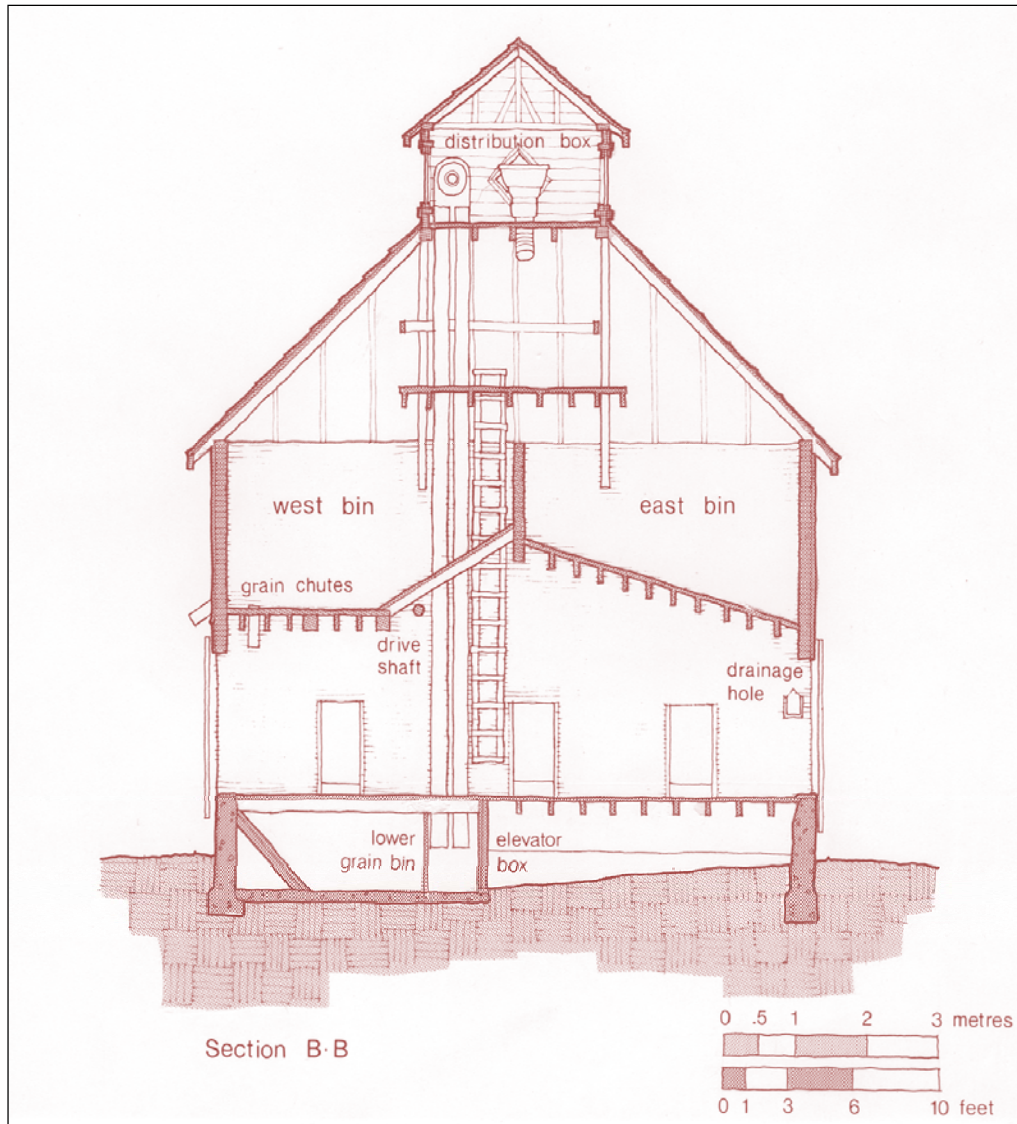
Figure 65
McCallum Elevator: section. The capacity of this elevator was 68,280 litres (7850 bushels).