As the Water Rose,
One Family's Experience with the 1972 Flood in Lewisburg
by
Betty Lou McClure

This is taken from a personal letter I wrote to Philadelphia friends on July 5, 1972, a few days after the water receded from one of the two great floods affecting Lewisburg in the 20th Century. The original letter is hand-written. The text that follows has been edited slightly for clarity, and some explanatory words have been inserted between brackets, but otherwise it remains as it was written then. When the river rose, I, my husband Jim, and our children lived at 17 Market St., just three doors from the bridge across the Susquehanna.

Flood waters surging along South Water Street

The letter begins:

Yes, Lewisburg got thoroughly flooded. No one was ready except the very cautious, because no one would believe it would be as bad as 1936. It was 2 feet higher than 1936 despite all the dams built after '36.

Lewisburg was too small to mention on TV, I'm sure, as was Milton, which had its business district entirely whipped by a raging current and wiped out!

It all began 2 weeks ago today. It seems a month ago at least. It was Bizzy's birthday and the pool swim party that night was completely rained out. It poured all day! 8 little girls spent the night and I had agreed to have them home by 10:00 on Thursday A.M.

At 6:00 A.M. we were awakened by a parent who lived on 6th Street, saying they were evacuating and someone was on the way to pick up the child. By 7:30 Jim had delivered all girls except Sarah Brodnax.

Market Street looking west from near 5th Street

Holly and I walked down to Market and 6th St. about 11:30 Thursday. Bull Run flows in back of the houses on the east side of 6th and eventually through Pop and Nana's meadow. The water looked like the Niagara River just before it goes over the falls. I wouldn't have put my big toe in it.

That morning we lost of Director of Safety, Gordon Hufnagle, who retired last year as police chief. He was in a boat rescuing a couple who were trapped on 6th St. Both he and the lady were drowned when the boat capsized. The husband clung to wreckage and was rescued.

All Friday we watched the river rise and Bull Run now began to back up from the river and spread out.

Dick and family were at the shore. Jim moved their furniture to the 2nd floor – everything, then moved all his folks(?) 1st floor, then ours, then a woman across from Dick and D.Ann. Some firemen and National Guards helped him.

Sat. night the crest finally came. There was 2 feet of water over the bridge – our bridge, 2 houses away. It moved with the current through the intersection of Water Street (at the corner) and Market and, in the gutters, came up as far as our maple tree out front. We had 5 more feet to the front door. 4 ½ feet in the basement; ruined everything there, mostly things we should have discarded long ago. I do feel bad about all the Christmas decorations, some my mother and grandmother's traditions. The state of the basement refrigerator is uncertain.

We don't complain though because we are so lucky. There was so much destruction around us.

Market between 5th and 6th Sts.

Our neighbor on Water Street had 4 to 6 feet in the first floors. The mud was thick and slimy and oily – many oil tanks tipped over in basements. We had no water for 2 days so people began to wash out mud using cellar water or river water – anything was cleaner than the mud.

Our oil co. men had appeared on Friday in the midst of all the morning to take our burner to the second floor.

So, after the crest, Jim lucked into an electric pump from the Telephone Co. and pumped the water out of our basement, finally, and we had our burner back and our heat on before most people. No water, though, as no hot water tank working.

We turned our electricity off as the water rose in the cellar and Friday night and Saturday Jim and I slept in a bare study on sleeping bags with candles, a fire in the fireplace and the transistor radio, checking the river every hour.

Fortunately our fuse box was above the water so we had electricity again as soon as the river had crested and started to recede.

Dick's 1½ feet in the first floor left warped floors – still too damp to bring furniture down. Their basement took forever to clear.

The Amish and Mennonites have been fabulous. They just appear with bucket, rags, etc. and dig in. D.Ann had 6 hefty Amish women helping in her basement.

Picture water covering Rt. 15 from the intersection at the high school down to Bechtel's dairy 4 blocks north.

Sarah Brodnax was finally rescued by her father on Sunday with the help of the National Guard. They had a big amphibian "duck" in town to transport across the water. We drove Sarah to N. 3rd St. where the National Guard picked her up and took her to a gas station across Rt. 15 at Buffalo Road where Ed Brodnax had managed to get by going to Mifflinburg from Winfield via back roads.

People had to be taken by boat to the hospital – Buffalo Creek crosses Rt. 15 just below the hospital. They were without heat, water, and electricity at the hospital for quite a few days.

I'll never forget the sounds and smalls of the flood days. No vehicular traffic – quiet prevailed except for muffled voices, and the lap lap of water. The

North 5th St.

smell of fuel oil was all pervasive, followed by the smell of wet wood and cardboard and mud that was piled high on curbstones to be hauled away. A huge front loader came along and scooped furniture, appliances, etc. etc. into trucks.

At the widest, Bull Run covered the distance between the A&P and the RR track, through town. So the store's merchandise in there was wrecked. Furniture floated out of Donohoe's furniture store, windows broken by the pressure of the water.

Huge oil tanks, broken loose from the Oil Co. floated through the McClure's meadow, as well as bales of peat moss from Agway and probably Mrs. Murphy who hasn't been found yet. They found Chief Hufnagle near the underpass at the College (St. George St.) about a week after he was lost.

The water came up on the Sr. McClure's porch 1" from the front door and first floor. It covered the stone posts in the meadow. Their furnace was ruined and they are still without heat, as are D.Ann and Dick. When will it ever dry out again? It is raining again today!!

St. Anthony St. ?

Jim's folks stayed on the 2nd floor the whole time. Jim would "boat over" to make fires in the fireplace for them. They took in an old couple from nearby and had a grand time.

There was an 8:00 (P.M.) curfew in Lewisburg and one night Jim took Holly and Kim over to stay overnight with the folks. It was about 8:30 and they were "walking in" via the RR tracks where the water was just over the ties. Suddenly a bull horn bellowed at them from down the tracks and they almost got arrested. Actually it was risky because they had crossed the RR bridge over St. George St. and you can picture the water. Jim came on home via canoe.

We had to boil all our water for 10 days.

The other side of the river is much worse off! The Fence where Kim and Holly had summer jobs washed away. Montandon was all under water. Mr. McDavitt, my dear old friend and perennial gardener, was ruined and is retiring and selling his greenhouse and business, what's left of it. Mobile homes are spilled all over the landscape, on the RR track, in people's yards, on end, etc. It's hard to believe your eyes.

Milton is still under marshall law. Their damage was monumental and the business district may never recover. Sunbury's dike held. The water rose to the very top of the dike – the whole city was evacuated to the hills while they waited.

On Mon. the sun finally appeared and we set to work clearing out the Presbyterian Church basement, which had 6 feet of water, ruining all Sunday

school material and equipment. We had crews of 3 hosing down, after we carried water-soaked stuff out to the curb. Hose pressure alone wouldn't take the mud off, so a crew with rags or sponges and buckets of Top Job [detergent] followed, then we jet-hosed with a disinfectant solution. Then all the water had to be pumped out again.

After the church basement we cleaned the children's library. All the books had been moved upstairs, but the shelves and walls were covered with silt – looked like a beautiful brown paint job.

The TV cable was broken right at the beginning of the emergency and we had no TV, newspapers, or mail for a week – all we knew about was Central PA.

This is a scrawled account of the flood of '72. I may add another note of two if I think of it and Jim will try to duplicate this so we can keep my hand from freezing around the pen. Hope you can read this. Please excuse the haste.

South Front St?

Photos used to illustrate the 1972 flood are lent by Dr. Richard Sauers, and, for the photo on p. 6, courtesy of The Packwood House Museum. Their assistance is gratefully acknowledged.

✄ ACCOUNTS ✄

The Shenks Ferry Indians on the West Branch
# of the Susquehanna River, 1300 to 1550 A.D

by

David Minderhout

[This is the first of two articles examining prehistoric Native American cultures on the West Branch of the Susquehanna River prior to the arrival of Europeans. This first article describes the Shenks Ferry archaeological culture, dated from 1300 to 1550 A.D. A second article, appearing in a subsequent issue of Accounts, will look at the Susquehannocks, who came after the Shenks Ferry people and for whom the river came to be named.]

Native Americans have lived in the Susquehanna River Valley for at least 10,000 years, and in the area that came to be known as Pennsylvania for perhaps as long as 16,000 years. The oldest known archeological site in the Valley is the Shoop Site on the North Branch of the river. Reliably dated to 10,000 years before present (B.P.), the Shoop site reveals native life at the end of the last Ice Age when glaciers covered northern Pennsylvania to about 40 miles north of what would become Williamsport, and much of the rest of the state was an Arctic-like tundra. However, the river was even then bordered by forests, and Native Americans lived a hunting & gathering existence not too different from the tundra-dwelling natives of the early 20th Century in Alaska and Northern Canada. Archaeologists refer to the people of this era as PaleoIndians, and they are recognized in archaeological sites by the long, beautifully made and fluted spear points, called Clovis points, after the site in New Mexico where they were first uncovered.

By 8,000 years ago, the glaciers had retreated, and the climate and landscape became much like it is today. This introduced a new phase in native

life, referred to as the Archaic, in which a new style of projectile point, smaller than the Clovis points, but notched at the base, is characteristic. At that time, Native Americans were still living as hunter-gatherers in small seasonal encampments along the river, drawing on the abundant plant and animal life that the river provided.
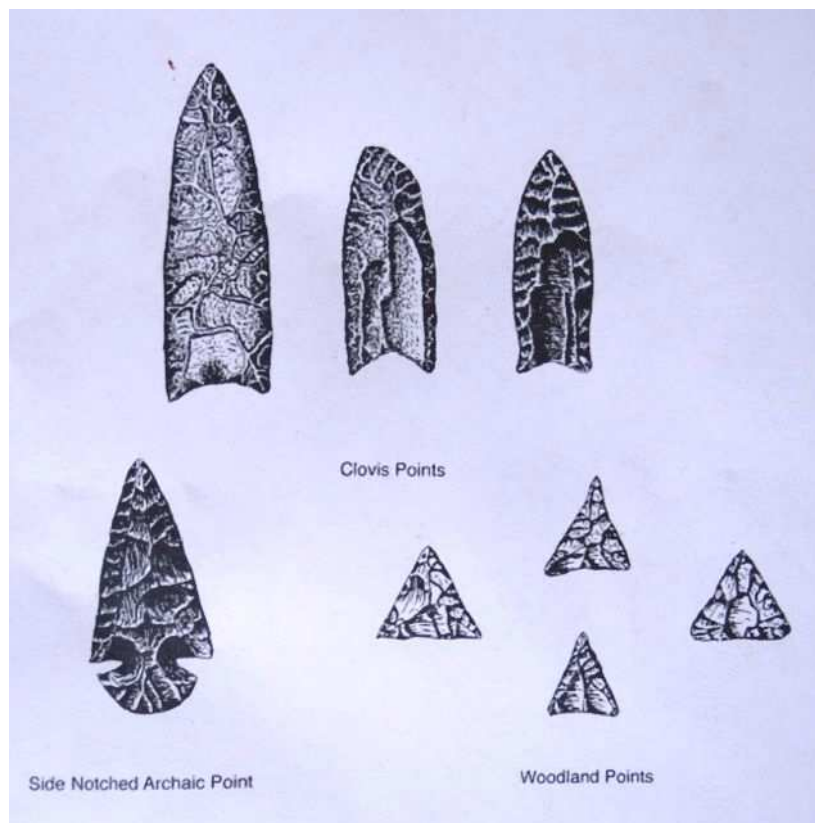
Prehistoric projectile points found in Pennsylvania. Adapted from
A Projectile Point Typology for Pennsylvania and the Northeast, by
Gary L. Fogelman, 1988   With permission of Gary L. Fogelman.

By around 2,300 years ago Native Americans in the river valley began to supplement their diet with agriculture, based largely on what the Iroquois would call the Three Sisters - maize, beans and squash - which had been domesticated in Mexico centuries before and which had eventually spread across the continent into the Northeast. Ceramic pottery also begins to appear in this time period. This mixed economy of hunting, gathering and Three Sisters agriculture is called the Woodland Era by archaeologists, and it persisted in the Valley until contact with Europeans in the 16th and 17th centuries.

Archaeology in Union County

Very little archaeological research on the Native Americans who lived along the Susquehanna River has been conducted - or reported - in Union County. On the surface, this is not unusual. Union County is relatively small, as Pennsylvania's counties go, and Europeans tended to settle on the banks of the river in the same places where Native Americans had camped, hunted or fished, or tended their fields. As a result, Native American sites became farmers' fields, home sites, or businesses, thus obscuring the prehistory of the region. Native projectile points and broken pottery can still be found along river courses, and especially in a newly plowed field in the spring, but native <u>living</u> sites have now been overlaid with construction and use for nearly 300 years. In an article in the April 2013 *National Geographic*, archaeologist Sarah Parcak notes that "We've only discovered a fraction of one per cent of archaeological sites all over the world," and the sad fact of archaeology is that unless a prehistoric culture produced monumental architecture that attracts great modern interest - such as Mayan pyramids at places like Tikal in Guatemala - it is often only by chance that a place where people once lived comes to the notice of an archaeologist, together with the opportunity to conduct even a small-scale scientific excavation.

In the United States, modern public construction such as putting in a bridge abutment or widening a road, requires an environmental impact statement to be filed, part of which may include an archaeological survey if there is reason to believe a prehistoric site might be uncovered or if early stages of construction reveal such a site. Even then, a site may be only partially excavated, depending on whether the artifacts or features revealed are deemed to be of sufficient interest, and compatible with the time schedule for the construction. Much of the archaeology conducted in Union County is the result of these constraints, and what is generally revealed are layers of habitation representing Archaic and Woodland era camp sites or village sites, often one superimposed upon the other in places that were obviously highly desirable locations in pre-contact times.

The Shenks Ferry Culture

Among the Woodland Era prehistoric cultures represented in the archaeological record of the Susquehanna River Valley is the Shenks Ferry culture that is dated to roughly 1300 to 1550 A.D. The Shenks Ferry culture takes its name from an excavation first conducted by Donald Cadzow in 1931 at a site along the river in Lancaster County - its modern name obtained from the ferry service the Shenks family operated in Conestoga Township 150 years ago. Shenks Ferry sites have been located all along the Susquehanna River from Lancaster County to Sunbury, and then north and west along the West Branch of the river all the way to the Lock Haven area. The most extensive Shenks Ferry excavations to date have been conducted in Lancaster and Lycoming Counties. This is not because sites in places like Union County are uninteresting, but because of the presence in the other counties of professional archaeologists, such as Cadzow in the Lancaster area and James Bressler in Lycoming County, who had the time and opportunity to conduct extensive work in those areas.

What is known about the Shenks Ferry people comes from three aspects: their material culture, as revealed through artifacts such as their pottery and stone tools, their economy as seen in the remains of plants and animals in their garbage middens as well as the seeds, rinds, and other preserved pieces of cultivated crops, and their structures. The size and shape of now vanished structures can be deduced through what archaeologists call post molds. Native American cultures in the Northeast typically built wooden structures for homes and storage. These structures were built around a framework of wooden poles or posts that were anchored in the ground. As the wood decomposes in the acidic soil of Pennsylvania, the soil in which it was placed becomes discolored - typically a darker shade than the undisturbed ground around it. Archaeologists carefully remove layers of dirt from a living site and mark these structures through the discolorations - the post molds.

From these remains archaeologists know that from around 1300 to about 1450 A.D. the Shenks Ferry people lived in small villages along the Susquehanna River in circular, bark-covered homes. Judging by the size of these structures and what is known historically from people who lived in similar homes, these

Shenks Ferry pottery fragments

early communities were probably made up of no more than 30 or 40 people. They made pottery hand-formed from local clay that was then decorated with lines, dots and distinctive rims before being fired in open fires. They used bows and arrows, tipped with small triangular stone points typically made from local flints, as well as larger polished stone implements, such as axes. In addition to maize, beans and squash, they had tobacco, which was smoked in small ceramic

Shenks Ferry projectile points, celts, net sinker weight

pipes, the latter fashioned from local clays. Agricultural produce was dried and stored in underground pits for later use. They took advantage of the river's

abundance, especially the periodic runs of shad, eels, and other fish, and they hunted deer, as well as other animals such as raccoons, rabbits, and occasionally, bears. The remains of nuts and berries in trash pits indicate the importance of collected plant foods, as do the seeds of wild plants such as goosefoot (Chenopodium).

Shenks Ferry people led a physically demanding way of life. The finishing of one polished stone ax head, made of hard river stone and made smooth

Shenks Ferry hoe blade

through polishing with river sand and smaller stones, would have taken an enormous amount of labor. Other stone tools, including projectile points and hide scrapers, had to be replaced frequently, as the stone broke or edges became dull with use. Hunting, fishing and gathering firewood to heat and cook, food and hide preparation, and collecting bark for covering homes were also time consuming and physically demanding. Even more time consuming would have been the clearing of the riverside forests to create fields for growing crops.

Smaller trees and shrubs could have been cleared with a stone ax, but the larger, old-growth trees had to be brought down by girdling - removing a strip of bark from the circumference of a tree, which would eventually kill it - or setting fires at the base of the tree to bring it down. A crop such as maize requires direct sunlight for over 100 days to mature, so not only would the area for a field itself

need to be cleared, but also some of the surrounding forest which would otherwise throw shade on the developing plants.

If the Shenks Ferry people were like later Woodlands cultures that are known historically, such as the Lenape, these labors were divided by a complementary gender-based system. That is, men would clear the fields, and women would plant and tend the crops. Men hunted animals and women turned their hides and pelts into clothing and blankets. If Shenks Ferry agriculture was conducted as is known from other cultures at historical contact, maize was

Clay pipe fragments from the Ault site

planted in hills (mounds), rather than in the continuous, monocropped fields we are familiar with. Each hill was made of mounded up soil and vegetation and planted with seeds of all three staple crops. The three crops germinate at about the same time, and as they grew, the vining beans would use the developing corn stalks as support, while the squash vines covered the ground in between the hills, acting as a ground covering green mulch. Research by agronomists at Cornell University has shown that this traditional form of planting could produce about as many food calories per acre as modern farming.

However, the work was labor intensive - and all done by hand, as the Shenks Ferry people had no mechanized equipment or draft animals to help them. And, because the fields were not fertilized, other than by the composted

remains of last year's crop, they would grow infertile after a few years. This was usually accompanied by a reduction in the local population of game animals and the pollution of the village site with garbage and pests. Consequently, Shenks Ferry villages were not permanent, but rather were abandoned periodically for new, more fertile sites. Based on what the archaeology suggests, as well as what is known from historic Native communities, this may have been every 10 to 15 years.

1450 A.D.: Shenks Ferry Culture Changes

Around 1450 A.D. the structure of Shenks Ferry villages changes dramatically. Now villages are surrounded by walls - palisades - of cut tree trunks set vertically in the ground, with only a single gate for entrance. A site in

Shenks Ferry projectile points with bone awl

Lycoming County excavated by Bressler and members of the North Central Chapter of the Pennsylvania Archaeological Society (known as the Ault Site) has a moat around the periphery of the stockade (marked by post molds) that was twelve feet across and five feet deep at its deepest point - all dug without metal tools like shovels or picks. The gate would have admitted only one person at a time. A stone foundation at one point suggests a tower built to look over the wall. These villages are significantly larger in population than earlier ones, and the

individual homes, while still built by the same principles as the previous small circular ones, were now larger and oval shaped, somewhat like the longhouses of the Iroquois peoples.

The obvious conclusion that is drawn from these changes is that the Shenks Ferry people now felt threatened and had adopted defensive formations to guard against incursions from hostile enemies. Since this time period roughly corresponds to when archaeologists and historians know that the Susquehannocks of New York State were moving down the Susquehanna River, the conclusion typically drawn is that the Shenks Ferry people were defending themselves against these invaders - though in reality, no one knows for sure. At any rate, this period is short-lived. At the Ault Site for instance, Bressler estimates that the logs used in the palisades would have rotted within six years, and they were not replaced. What is known is that by 1550 the banks of the Susquehanna were inhabited by the people we now call Susquehannocks and that Shenks Ferry material culture has disappeared.

What Happened to the Shenks Ferry People?

Archaeologists are interested in three related questions with regards to the Shenks Ferry Culture: 1) Where did they come from? 2) To what degree did they interact with other local cultures in the Susquehanna Valley at the time? and 3) What happened to them after 1450? Since the Shenks Ferry people left no written records, archaeologists turn to pottery to give some insight into these questions. Fortunately for archaeologists, prehistoric cultures tended to be conservative in their ceramic traditions, passing down their techniques and designs generation after generation. That is, pottery traditions tend to be remarkably consistent over time with regards to the shape of the vessels produced, the temper added to the clay (temper being sand, crushed shells or gravel that is added to the clay before firing to make it tougher and less likely to crack during firing), and the designs added to the pots.

Shenks Ferry pots tend to be fairly small and globular in shape, with tall, often notched rims. They are tempered with crushed shells and finished with designs that often cover the entire pot, designs made by pressing string or cords

into the wet clay. It is also fortunate for archaeologists that broken ceramics are common finds in archaeological sites; over 30,000 broken pieces of pottery were found at the Ault Site, for instance. On the one hand, fired pottery is hard and can last for centuries; on the other hand, clay pots break in use and the pieces are often discarded in prehistoric garbage pits.

When Cadzow made his original discovery, it was assumed that the Shenks Ferry Culture had evolved in place out of earlier prehistoric native cultures along the Susquehanna. However, similarities between Shenks Ferry pottery and that found in archaeological sites along the Potomac River in Maryland now suggest that the Shenks Ferry people migrated into the Susquehanna River valley, perhaps from the Maryland area. This migration scenario is bolstered by evidence suggesting that the previous inhabitants of the valley moved out of the area to the northwest at about the same period in time, i.e., around 1300 A.D. These pre-Shenks Ferry people are well known in the archaeological record as the Clemson Island Culture (1000 to 1300 A.D.), named for the excavations done on a large island in the river north of Harrisburg. Clemson Island pottery is also distinctive - large conical pots with little surface design, other than rims often decorated with perforated dots. In Union County and other places on the West Branch, Clemson Island pottery is found in archaeological sites in layers below Shenks Ferry artifacts. Clemson Island ceramics are also similar to later Owasco pottery; the Owasco prehistoric culture is seen as a predecessor to the Iroquois peoples of New York State.

These findings suggest to Bressler that the Shenks Ferry people arrived from Maryland and moved up the Susquehanna, replacing or forcing out the Clemson Island people (whom he believes moved north and west and became the Senecas.) However, pottery also suggests that there may have been some interaction between the two beyond the replacement of one culture by another. In West Branch Shenks Ferry sites, a style of Shenks Ferry pottery appears that is called the Stewart Phase. The Stewart Phase pottery is not found in the North Branch or along the main river after the branches come together at Sunbury. However, it is occasionally found in archaeological sites northwest of the Susquehanna in the Ohio River Valley. Stewart Phase pottery appears to be

Shenks Ferry ceramics with some Clemson Island influence. Bressler interprets this to mean that the two cultures interacted and that the Clemson Island people who moved north after 1000 A.D. took some of that Shenks Ferry influence with them.

The Susquehannocks Arrive

As noted above, around 1450 A.D., Shenks Ferry villages go through a significant change, with large palisaded towns replacing smaller scattered villages. The interpretation that is easy to draw from this is that the Shenks Ferry people felt the need to defend themselves, and historians suggest that this need may have arisen from an invasion by the Susquehannocks. The Susquehannocks, after whom the river came to be named, are believed to be originally from communities on the North Branch of the river near present day Athens and Sayre, Pennsylvania. Little is known about the Susquehannocks other than they were Iroquoian people related to the Senecas, Cayugas and other members of the Haudenosaunee (League of the Iroquois) of New York State.

Historians believe that the Susquehannocks were forced out of their native area in the late 15th century by the other Iroquois people, though some have suggested that the Susquehannocks moved voluntarily to get closer to European communities and their trade goods in Maryland and southeastern Pennsylvania. Objects of European manufacture are frequently found in Susquehannock sites dating from the 16th and 17th centuries. Whatever the reason, archaeology shows that the Susquehannocks rapidly moved down the river along the North Branch in the 15th century, eventually creating their large towns such as Washington Boro in the Lancaster County area. Captain John Smith famously met a contingent of Susquehannocks in his voyage up the Chesapeake Bay to the mouth of the Susquehanna in 1608; the Susquehannocks had come south to trade with the Tockwogh people of the Chesapeake.

Archeologists and historians alike assume that the Susquehannocks overwhelmed and destroyed the Shenks Ferry culture, though there is little or no archaeological evidence for this. As noted before, the Shenks Ferry people built their palisaded towns, but soon abandoned them. Bressler again notes the

possibility of interaction between the two cultures, noting that some pottery recovered from Susquehannock sites in Lancaster County suggest Shenks Ferry influence.   To explain this Bressler suggests that some Shenks Ferry women may have been taken as captives by the Susquehannocks; it was not unusual for native people of the Northeast to take women captives and "adopt" them into their own communities. If this is so, Bressler believes that these Shenks Ferry adoptees brought their own traditions to their new communities.

[An account of the Susquehannocks will appear in a second article by Dr. Minderhout in a forthcoming issue. – ed.]

Suggested Further Reading:

James Bressler and Karen Rockey. *Tracking the Shenks Ferry Indians at the Ault Site.* Williamsport: Lycoming County Historical Society. 1997.

David Minderhout. *Native Americans in the Susquehanna River Valley, Past and Present.* Lewisburg: Bucknell University Press. 2013.

Daniel Richter. "The First Pennsylvanians." In, *Pennsylvania: A History of the Commonwealth.* Randall M. Miller and William Pencak, eds. pp. 3-46. 2002.

✂ ACCOUNTS ✂

The 1790 Census:
Portrait of the Susquehanna Frontier
by
Bruce Teeple

Introduction

Whenever governments compile information, it tends to create political and logistical nightmares. Even two hundred years ago, paranoia and petty regional jealousies dictated how much information George Washington's administration could gather on American citizens. We usually hear how important the 1790 Census was in determining who was represented in the legislature. If we take the time to count these numbers, though, those simple, hand-drawn columns also provide a surprising snapshot of the upper Susquehanna frontier.

The 1790 Census, the first ever conducted by our government, is a treasure trove of information, but it has some inherent shortcomings. Most censuses provide such information as the participants' ages, the location of their homes, and their occupations. We take all of that for granted in later censuses, but you will not find that information in this one. It is also impossible to compare this census with the next one. Enumerators listed names in the 1800 Census alphabetically. The 1790 Census lists, however, are spatial; they go from neighbor to neighbor. There is still plenty of material in this census, though, to show us how the Susquehanna watershed's population changed over time.[1]

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[1] We can view digital copies of Northumberland County's original handwritten census schedules on Ancestry.com. Similar forms in many other states, unfortunately, were lost over the years. Although you need to purchase an Ancestry subscription, the site will search for your ancestor after you type in the name. Libraries and historical societies also often have census records either in hardbound volumes or on microfilm. This census, by itself, does not provide enough information to pinpoint where your ancestor lived. To do that, you will need to coordinate your research with maps, tax records and other court documents
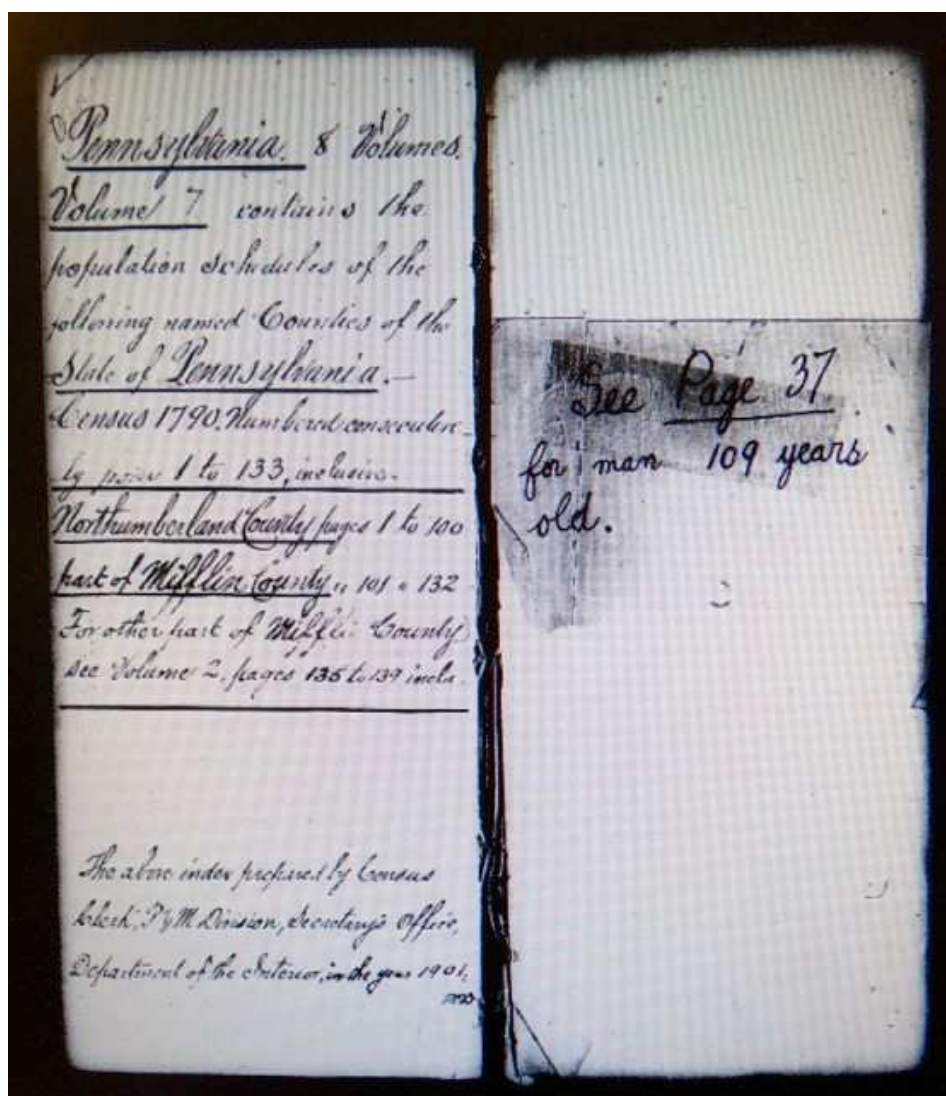
The title page of Northumberland County's 1790 Census is on the left. On the right-hand page is an all-too-human reaction, where someone notes an inhabitant claiming to be 109 years-old.

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Why Take a Census?

Censuses are as inevitable as death and taxes. The then three-year-old U.S. Constitution authorized taking these snapshots every ten years for several practical reasons. These included:

1) To collect taxes – Contrary to popular misconceptions, the revolution was not about abolishing taxes. Part of the fight was over taxation without representation, and states had to pay their fair share of the bills incurred by that revolution.

2) To assess military manpower requirements - You cannot defend yourself if you do not have the muscle.

3) To gauge the fledging nation's potential for industrial growth - In other words, will you have enough people to do the job, any job, now and in the future? That is why this census divides the counts of free white males between those above and below the age of 16.

4) To ensure equal representation in Congress as the population grows and moves. Linking the census numbers to taxation discouraged states from exaggerating their total number of residents.

Who Conducted It and When?

Congress made U.S. marshals (in Northumberland County's case, James Potter) responsible for hiring deputies and supervising the 1790 census. Marshals and their

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deputies began their enumeration on Monday, 2 August 1790, and had to complete their work nine months later. The official snapshot date would be the starting date,

James Potter certifies this as the official count for Northumberland County. Each page has an average of 22 to 25 names. Potter lists the names from neighbor to neighbor rather than alphabetically, as would be the case with the 1800 census. Labels for each of the census's five categories – free white males above and below 16, females, other free persons, and slaves – are at the top of each column. Tallies of each column are at the bottom of the page. Note that Potter also uses the 18th century convention of making the first "s" (as in John Reasner and Joseph Hudson, the first two names) look like an "f."

regardless of the day the information was gathered. As long as you were still alive on or born after 2 August, they counted you. For example, if the enumerator knocks on your door in January, and your spouse died back in October, the deceased was alive on 2 August and therefore still included.

Enumerators had to visit every household and then post results in the two most public places within the jurisdiction. The job was hardly popular. Most people were even more suspicious of census takers than they were of the government. Governments elsewhere tended to use census information to monitor religious affiliation and levy taxes. This explains why the 1790 census, compared to other census years, does not yield many details. Those who refused to answer questions were fined $25, with the marshal and government splitting the difference.

Compensating Census Takers

How much were census takers paid? If you covered a city or town with less than 5,000 persons, the government paid a dollar for every 300 counted. Rural trackers received a dollar for every 150 persons, and enumerators in more remote areas got a dollar for every 50 persons. The local federal judge determined each of these categories.

The government provided a sample form, but enumerators had to buy their own paper, which was neither cheap nor readily available. Enumerators also had to make their own copies, hand rule each page, and pay for all supplies.

How Many Lived Here?

This first census shows who was living in "Mother Northumberland," a vast area of northern Pennsylvania now including Union and over twenty other counties. Exactly 16,965 biological people had already flooded these hinterlands, hoping to improve their situations during the post-Revolutionary economic crises. (They are "biological" only because the "Founding Fathers" decided enslaved Africans legally were fractions.) The basis of this census was the household, usually headed by a male. With almost 3,000 households, we find an average household size of 5-6 people.

Who Lived Where?

Name						Name				
14 John Kelly Esq	2	7	4	0	0	Richard Irwin	3	4	2	
Mrs. Hannah	1	0	2	0	0	William Dundas	2	3	6	
John Linn	2	2	3	0	1	James McLaughlin	1	6	3	
Thomas Elder	2	2	3	0		John McLaughlin	1	2	4	
James Elder	1	1	1			Robert Townley	1	3	3	
Robert Elder	1	0	1			William Blythe	1			
William Nichols	2	0	2			Robert Carnahan	1	2	2	
Arthur Cleland	2	5	3			Agnes Hunter	0	1	2	
Joseph Patterson	1	1	4			Alexr Gamble	1	4	3	
John Bean	2	3	5			John Carmody	1	0	1	
Isaac Bear	1	2	1			Godfrey Dersing	1	1	2	
Henry Henricks	2	2	1			William Mackey	1	3	4	
William Allison	1					John Mackey	1	0	1	
James Buchanan	3	0	2			James Law	2	0	2	
Henry Tidings	4	0	2			Joseph Moore	1	1	3	
Joseph Brundage	3	3	5			Richard Steel	1	1	3	
Nancy Dempsey	0	2	1			Robert Finney	1	0	1	
Joseph Poake	1	5	3			Lazarus Finley	1	2	2	
James S. Poake	3	0	4			Peter Wilson	3	1	4	
Geo. & Moses Dickey	2					Robert Martin	1	6	4	
James Donally	1	2	3			Gosham Hix	2	1	2	
Andrew Heckle	2	1	6			Alexr Stephens	2	2	5	
Joseph Darlington	1	3	2			Seterie Vertz	2	3	3	
Leonard Groninger	1	0	5			Nicholas Belsh	1	1	3	
Daniel Collins	2	0	1			Ludwig Welsh	1	2	3	
Jacob Groninger	1	0	1			Daniel McComb	1	4	2	
William Tidings	1	0	4			Caleb Faveley	1	2	3	
Ephraim Donagh	1	1	4			Saml McPaughey	2	0	1	
John Brown	1	1	2			John OBrian	1	1	2	
Peter Lawyer	1	0	4			George Kellar	1	2	4	
Total	48	43	79	0	1	Saml Hougland	1	2	1	
						Total	40	60	81	0 0

Note John Kelly's name at the top left. As an "Esquire," he is the most prominent person in the region, so we can use this as a reference point. (Incidentally, using the term 'esquire' is rather curious. Today it means a lawyer. In 1790, it was probably a British carry-over, meaning one of higher social standing. So much for revolutionary notions about radical democracy…. Later, "esquire" came to mean a justice of the peace. Furthermore, in terms of etiquette, it is incorrect to call yourself "esquire." Only others may bestow it on you as a form of address. So lawyers who put "esquire" on their stationery are technically committing a social faux pas.)   There are no roads or municipalities listed, so it is difficult for modern-day researchers to get their bearings, other than being familiar with names such as Kelly, Simon Snyder, or Henry Antes.

We also see "Mrs. Hannah" and about half way down, "Nancy Dempsey" listed on the left. Mrs. Hannah has a son over 16 and two females, who may be either daughters, a mother, mother-in-law, or hired help, so Mr. Hannah may have abandoned his family; otherwise "Mrs." would be listed as "Widow." Nancy Dempsey runs a household most likely as the older sister of two younger brothers and an additional female.]

The political landscape of the Upper Susquehanna Valley in 1790 appears unfamiliar to modern eyes. Few roads, villages or townships existed as we know them today. The only way to get your bearings while reading this census is by recognizing the names of prominent neighbors. These are often the first names, listed as either "Reverend" or "Esquire," at the top of the page. They are likely the "go-to" people, signaling that you're in a new neighborhood. Most of these names are familiar: Simon Snyder in Selinsgrove, James Potter in present-day Centre County, Henry Antes near present-day Jersey Shore, and Samuel Maclay and John Kelly in present-day Union County.

Ethnicity

The only way we can analyze ethnicity at this early date is to look at family names. As a rule, newcomers to any locale tend to stick with their own kind for a generation or two, so cultural and linguistic chauvinism probably inhibited much intermarriage.

We can also read between the lines with this census. At this point, those with English/Scots-Irish names outnumbered ethnic Germans by about 3 to 1, but this was a decade of transition. German newcomers began flooding the region, tending to live, procreate, buy land and vote in the richer agricultural lands of the lower Susquehanna watershed, rather than in the West Branch Valley. And they stayed.

Spelling

Many family names were spelled differently then. Spelling was phonetic, according to English ears, especially when it moves from German to English consonants, such as "D" to "T" or "B" to "P." Today's Kerstetter was "Castater" (i.e., one from Karstädt). Yocum was "Yeocom" and "Yeokim" (from Joachim). Bowersox was "Powersocks" (from "Bauer" and "Sachs," i.e., a Saxon farmer). Philip Vaneda (whose descendants now spell the family name at least thirteen different ways) came from the town of Neida, hence "von Neida."

We cannot look at spelling from a 21st century perspective. Spelling is consistent with the recorder, but respondents, even if literate, did not necessarily spell their names the same way. Most likely, no one cared because spelling was not a priority. There were

no Social Security cards, driver's licenses or "voter IDs." The courthouse had your deed on file. You, your family and neighbors knew who you were. That was all that mattered.

Categories

The 1790 Census only has five categories:

1) free white males under the age of 16;
2) free, white males over the age of 16;
3) females;
4) other (i.e., free persons regardless of race or gender); and
5) slaves

There were about 9000 free white males in Northumberland County. Half were above and half were below the age of 16, but this census does not tell us what anyone did for a living.

Approximately 8000 females lived here. Their age was irrelevant since women technically did not vote, fight, or work (ok, at least "officially"). The census classified ninety-nine people as "Other."

Slavery

Eighty-four individuals in Northumberland County (less than 1% of Northumberland County's total population) made up the fifth group: slaves. This section did not differentiate between men, women or children. It was just one blanket category with no legal status…. like counting mules.

Fifty households (less than 2% of the county's total) had slaves. Over 90% of these slave-owners were Scots-Irish. The average slave-owner here had one or two slaves. Two households owned five slaves, one had six, and one owned seven.

Names of Heads of Families	All White Males	All White Females	Number free under...	Slaves	
John Rerick	4	1	1	0	0
Jacob Wiese	2	3	4	0	0
Frederick Wiese	2	3	3	0	0
Andrew Ponteus	1	2	5	0	0
Phillip High	3	1	5	0	0
Christr Borough	1	1	3	0	0
David Burd	1	2	4	0	0
William Fisher	1	2	3	0	0
Henry Aunandroffe	1	1	3	0	0
Henry Gather	1	2	2	0	0
Samuel Carothers	1	0	3	0	0
John Huntsman	1	2	1	0	0
William Huntsman	1	0	1	0	0
James Huntsman	2	2	2	0	0
Christr Johnston	1	1	6	0	0
Andrew Greenhoe	3	1	1	0	0
Jacob Wiese Junr	1	0	1	0	0
James Christie	1	0	4	0	0
Robert Russel	1	0	1	0	0
Widow Lowrey	7	0	2	0	0
Hugh Lowrey	1	1	2	0	0
Robert Street	1	0	1	0	0
Allen Scroggs	1	2	3	0	0
John Ward	1	0	1	0	0
Anthony Lightle	1	1	5	0	0
Total	41	28	67	0	0
William Huston	1	3	3		3
Samuel Lyons	1				
Jacob Prickle	1	0	1	0	0
Emmor Moore	1	4	2	0	0
William Anderson	2	4	2	0	0
Daniel Sampson	1	3	2	0	0
Christr Vangundy Junr	1				
Alexr McGrady senr	1	1	2	0	0
Alexr McGrady Junr	1	1	1	0	0
James Forster	1	1	2	0	0
Jean Forster	2	0	4	0	0
John Glendinan	1				
Leanord Peters	1	1	2	0	0
Christr Wiefer	1	3	3	0	0
Thomas Forster	2	3	3	0	0
Andw Forster	1	4	3	0	0
Robert Forster	1	3	3	0	0
Benjn Wells	1	0	1	0	0
Thomas Marrit	1	0	1	0	0
Christr Dale Senr	5	0	2	0	0
Christr Dale Junr	1	1	1	0	0
Henry Dale	1	1	1	0	0
John Irwin	1	0	1	0	0
John Clarke	1	0	2	0	1
Joseph Clarke	2	2	5	0	0
David Watson	4	2	5	0	1
Elias Youngman	2	0	1		
George Youngman	1	1	1		
John Friesbaugh	1	1	1		
Total	41	39	55	0	2

Each name in this census is the head of a household. Almost all are men; few, such as Widow Lowrey on the left, are female. You will often see clusters of family names in the same vicinity, such as the three Huntsmans on the left and the five Forsters on the right. This, however, causes problems in determining relationships. Since this census does not tell us anyone's age, we have no idea who is a father, brother or son to the others. Note slave owners John Clarke and David Watson listed on the right.]

Birth Origins

The place of one's birth is not just a modern topic of controversy. Other than from last names, we have no idea who was "native-born" and who was born elsewhere. Widespread racism and xenophobia would cause the 1830 and 1840 censuses to address these phony, irrelevant issues.

Conclusion

The wealth of information in later censuses has spoiled genealogists and social historians, compared to the frustration they get from the 1790 Census.

Any tabulation generates some controversy or is open to charges of bias. This census was no different. Working within a nine-month deadline and facing considerable logistical problems, complaints were inevitable. Thomas Jefferson, George Washington and fellow Southerners believed the census would short-change representation from states below the Mason-Dixon Line because of a more scattered population, substandard roads, and a host of hostile citizens.

When we look back at the enormity of this task - given the time, the people, the technology, the political sentiments, and the transportation networks - it's a wonder the census takers achieved what they did when they did.

At least it was a start.

Note

A microfilm copy of the 1790 census of Pennsylvania is available at the Society's Courthouse Office. Microfilm copies of most other U.S. decennial censuses of Union County through 1930 are available there for study. Mary Belle Lontz has produced name indexes organizing the names appearing in each census, for many of the censuses from 1790 to 1930, facilitating the search for particular names in the censuses. The Lontz indexes are also available in the Society office. In addition, the printed census tabulations for Union County localities, including names of household heads, issued by the Bureau of the Census are available at our courthouse office. Censuses after 1850 provide names of all household members and other interesting information.

✂ **ACCOUNTS** ✂

# Andrew A. Leiser, Sr. and Pieces of His Mail
by
Roger Curran

Before the telephone became a staple of everyday existence, the written word, transported through the mails, was the essential vehicle of communication among parties that were not in face-to-face contact. Old personal and business letters were frequently kept for years by the recipients and they have provided to successive generations valuable historical information about the lives and times of the myriad authors.

About 15 years ago I acquired a box of old envelopes addressed to Lewisburg resident Andrew Leiser. I'm a stamp collector and came to realize that these envelopes were part, probably the remnants, of a larger correspondence file that had been picked through for saleable stamps and postal markings. From the contents of the box and what I have noticed elsewhere, the correspondence appears to run from the 1880s to the early 1930s. It is addressed to Mr. Leiser, or partnerships to which he belonged, and mailed primarily from central Pennsylvania towns but also from elsewhere such as Philadelphia and other states. The headline for his obituary appearing in the April 9, 1931 edition of the *The Lewisburg Journal* stated that Mr. Leiser was " . . One of the Most Eminent Counselors at Law in Central Penna. . . . ."

Who was Andrew Leiser?

Andrew Albright Leiser, Sr. was born in Lewisburg on July 17, 1850. He graduated first in the University at Lewisburg class of 1869 and gave the valedictory address at commencement. He was a teacher for a brief time and then began study to enter the legal profession. After "reading" law in Lewisburg with G.F. Miller for the prescribed period and attending lectures at the law department of the University of Pennsylvania, he was admitted to the Pennsylvania Bar in 1874. In 1876 he was appointed to fill an unexpired term as

Union County District Attorney and then elected to a full term. In 1881 he formed a partnership with the Hon. Charles S. Wolfe and James Dale Wilson.
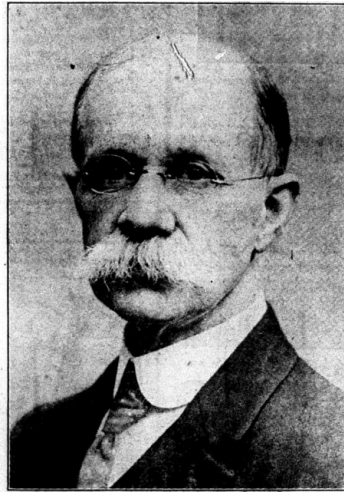
Andrew Albert Leiser, Sr.[i]

Wilson moved to Philadelphia in 1881 and the firm, then known as Wolfe and Leiser, continued until the death of Mr. Wolfe in 1891. Mr. Leiser thereupon entered into a successful solo practice, to be joined later by his son, which included numerous appearances before state and federal courts. He was a charter member of the Pennsylvania Bar Association and served for many years on the examining committee. Both the Pennsylvania and Reading railroads appointed Mr. Leiser their legal representative for Union County.

In 1877 Mr. Leiser married Susan Breckenstein and the marriage produced two children: Andrew Leiser, Jr., a member of Bucknell's class of 1898 and Marie Leiser, a member of Bucknell Institute's class of 1899. Marie subsequently married attorney Roy G. Bostwick of Wilkinsburg, Pennsylvania, who later became chairman of Bucknell's Board of Trustees.

While in college, Mr. Leiser joined Phi Kappa Psi and continued a close association with the social fraternity long after graduation. In a November 2002 article in *Bucknell World* entitled "The Names Behind the Buildings," Doug McMinn stated the following:

> "Mr. Leiser was a dedicated member of Phi Kappa Psi, serving it as national president. On his death in 1931, The Bucknellian described his importance to the fraternity movement at Bucknell: 'He was

chiefly instrumental in securing the removal of the ironclad pledge which was imposed on the Greek letter societies by President Loomis and made any student ineligible for graduation who was a member of such an organization.'"

The northern edge of Bucknell's campus merges with a residential section of town along St. George St. from South 4th to South 7th Sts. Over the years the University has acquired some of the houses in this section of St. George and they are used as centers for students with specific common interests. One such house was the home of Mr. Leiser, purchased by Bucknell in 1958 and now known as Leiser House. It is located across the street from Larison Hall and currently serves as a gathering place for International students. Mr. Leiser died in this house and practiced law until shortly before his death.


"Leiser House," 522 St. George St., Lewisburg

Envelopes from the Box

Several of the envelopes that were in the above-mentioned box are illustrated below. Bucknell had its own post office from 1898 to 1912. The first envelope was postmarked at Bucknell on December 13, 1900 and is shown with a portion of post card (not addressed to Mr. Leiser) where the Bucknell postmark was struck more clearly.

Two postmarks from the "Bucknell" post office

The second envelope is postmarked Lewisburg, September 25, 1905 and presents advertising for the 1905 Union County Fair with return address on Market St., Lewisburg. It is curious that the sender, a Mr. Wolfe, is listed at Bucknell, Pennsylvania. Perhaps Wolfe worked for Bucknell and wrote County Fair correspondence on campus.
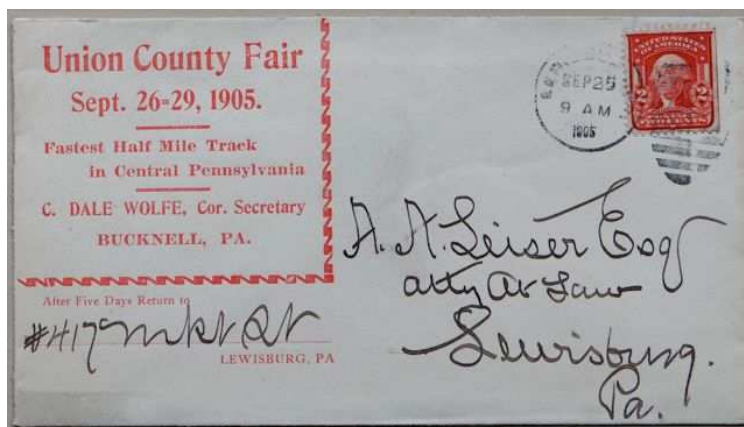
Advertising for Union County Fair, 1905

The third envelope boldly advertises the wares of a Montandon factory. It was posted at Montandon on December 15, 1887 and at the bottom of the fancy postmark appears the name "Franklin Spyker, P.M." Spyker served as Montandon's postmaster from September 1885 to August 1889.
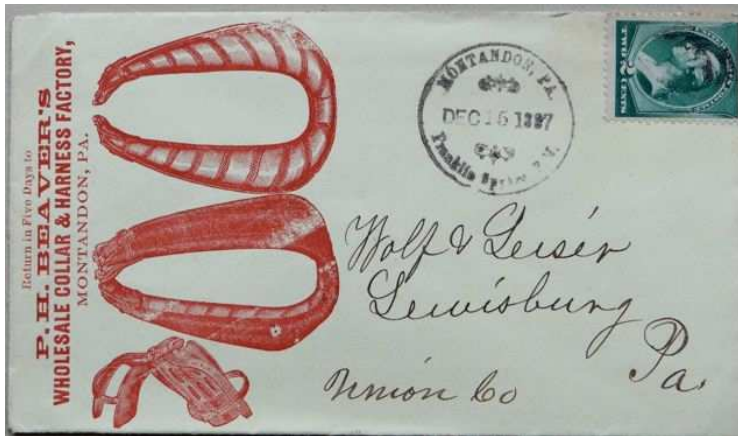
Fancy postmark that includes postmaster's name

The Kelly Cross Roads post office operated from 1864 to 1905. Note the use of an actual cross in the postmark on the fourth envelope. This envelope was mailed June 4, 1890 and the enclosed letter provides an explanation as to why the sender, A.A. Diffendorfer, would not accept, and thus not pay for, a shipment of 50 crates of oranges. He had asked that they be shipped by way of the Pennsylvania RR "via fast freight" and be so marked. Apparently the crates wound up in West Milton and were "dragged around the road" before delivery resulting in oranges that were "all wet and half of them rotten."

Kelly Cross Roads postmark abbreviating "Crossroads" to "+" at top of postmark

There was a practice seen with some frequency in the 19th century of abbreviating the address to "City" on mail when the addressee was a local resident served by the same post office as the sender. It would, of course, have

started in communities much larger than Lewisburg but the practice was used in a wide range of towns as well as cities. The word certainly didn't technically fit in the case of the fifth envelope, but its intended meaning would have been crystal clear.
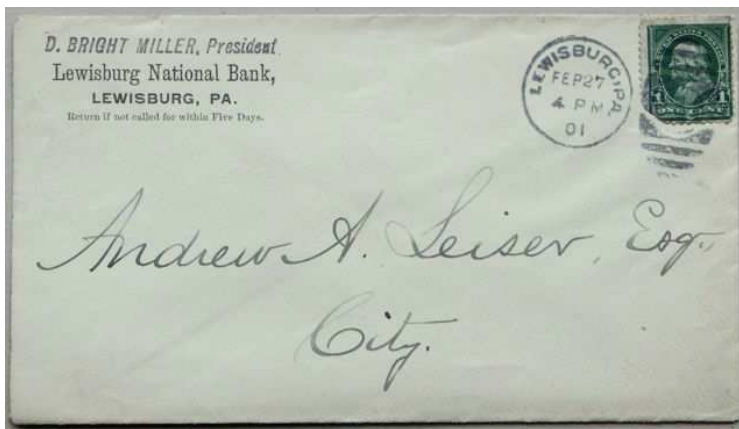
Lewisburg address abbreviated to "City"

The postmark on the sixth envelope has the initials "R.P.O." at the bottom that stand for Railway Post Office. The 67-mile route for this RPO ran on the Pennsylvania RR from Montandon to Bellefonte. Clerks in RPO mail cars sorted mail on moving trains to speed delivery. They received mail from, and delivered

Envelope postmarked by Montandon and Bellefonte Railway Post Office

mail to, post offices along the route. Mail received directly from the public rather than from a post office was postmarked with special handstamps that identified the RPO. Both Laurelton and Lewisburg were served by the Montandon to Bellefonte RPO which operated from 1886 to 1912.

The Lewisburg post office was once spelled "Lewisburgh." This was true of many other towns with "burg" in the name. In the early 1890s, the Federal government undertook a reform of the nomenclature for "geographic names." General guidelines were established for naming post offices. The following are examples:

-avoid the possessive forms of names

-drop the final "h" in the termination "burgh"

-abbreviate "borough" to "boro"

-spell "center" as here given ("centre had been popular)

-simplify names consisting of more than one word by their combination into one word

-drop the words "city" and "town" as parts of names

Two "Lewisburgh" postmarks

The new guidelines caused many changes in post office names during the 1893-95 period. A few of the changes in our region during this time were :Mifflinburgh and Vicksburgh as well as Lewisburg losing the "h", Selin's Grove becoming Selinsgrove, Kelly Cross Roads becoming Kelly Crossroads, Hummel's Wharf becoming Hummels Wharf and Cedar Run (Lycoming Co.) becoming Cedarrun. Some post offices pursued efforts to regain the former spelling. Pittsburgh and Centre Hall are notable examples, achieving success in 1911 and 1925 respectively. The last two envelopes bear "Lewisburgh" postmarks. The one on the left is not from the Leiser correspondence but shows use of an attractive blue postmarking ink. The envelope on the right was sent to Allenwood where it was unclaimed and subsequently returned to the sender.

Perspectives from these Old Letters

What insights do old letters offer? Correspondence from the 19th century, for example, reveals the challenges of living before the era of modern medicine, often devoting much attention to health and illness. They paint vivid pictures of life before today's modern conveniences. Some involve firsthand accounts of significant events of local or even broader historical interest and some provide reflections on social issues of the day. In short, of course, they document the human experience in the words of those who were living it.

Sources of Further Information

Several references used for this article are identified herewith. The book, *Commemorative Biographical Record of Central Pennsylvania* published in 1898 by J.H. Beers & Co., Chicago. The U.S. Postal Service website provides information on past postmasters. (A Google search of "USPS postmaster finder" will lead one to the appropriate section of the website.) *Pennsylvania Postal History* by Kay and Smith, published in 1976 by Quarterman Publications, Inc., Lawrence, MA, provides a comprehensive list of Pennsylvania post offices with opening dates, closing dates (if applicable), first postmasters, etc. with some discussion in the introduction about the spelling of post office names. *The U.S. Railway Post Office Postmark Catalog*, published in 1995 by the Mobile Post Office Society, is the leading reference on "R.P.O." markings.

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[i] Photo from The Lewisburg Journal, April 9, 1931.

✄ **ACCOUNTS** ✄

The Lewisburg Airport
by M. Lois Huffines
as told by Ruth and Fred Brouse

(Photo by M.L. Huffines)

Lewisburg once had an airport, but today's residents might be hard pressed to say where it was. The only remaining clues are three street signs: at Airport Road and Route 192 (Buffalo Road), the corner presently the site of SUN Orthopedic Center; Airport Road and Campbell Mill Road; and Airport Road and Wm. Penn Drive, the road leading into the Northeast Federal Penitentiary. These three signs are the only indications to today's Lewisburg residents that the Lewisburg Airport was once nearby.

Ruth and Fred Brouse noticed that *Lewisburg*, a pictorial history of co-authored by Marion Lois Huffines and Richard Sauers and published by Arcadia, told the story of Lewisburg but made no mention of its airport. Of the 221 photographs in that volume, none were of the airport, which the Brouse family had built and operated. To rectify this oversight, Huffines interviewed the Brouses twice in their home. During the second interview, Melvin Reed joined in the conversation. Both Brouses and Reed had photographs relating to the airport, and both described its operation and the fliers who used it. Their stories also told how the airport came to be and how it had served the community by providing services otherwise not available locally.

In 1948, George F. Brouse (born in 1880, died in 1962) was approached by a couple of friends about two farm fields next to each other that he owned. Would he be

willing to have those fields turned into a landing strip?   One of the friends, Harold Derk, owned an airplane and flew it as a hobby. He had often given his friend George a ride. He also had a heavy construction equipment business in Montandon, with road graders and power shovels. George Brouse agreed, and Derk used his equipment to lay out the runway and to level and seed it. Soon the 3,245 foot runway was complete. And there it was, the Lewisburg Airport, so named by the township supervisors. It was inspected and licensed by the Civil Aeronautics Board. The Official Opening was Sunday, July 30, 1950. The event was celebrated by a jump by world champion parachutist Bill Cooper, music by the Lewisburg High School Band, rides in a "giant transport plane," a crop-dusting and spraying exhibition, and that evening in the hangar by round and square dancing. The "giant transport plane" was a DC-3 which could carry 18 passengers.

This announcement of the formal opening of the Lewisburg Airport was published on July 28, 1950, by the Sunbury Daily Item.

This metal sign advertises the Lewisburg Airport to potential recreational fliers. It may be meant to attach on to a vehicle license plate holder.

Eager passengers crowd at the door for a ride over Lewisburg in the DC-3 at the opening of the Lewisburg Airport. The aircraft took up 18 passengers at a time throughout Sunday afternoon, July 30, 1950.

The first hangar at the Lewisburg Airport was built also in 1948, and it was large enough to shelter five aircraft. George Brouse then made a deal with his son, Fred W. Brouse: if Fred would take care of the airport on the weekends, George would build an apartment on to the end of the hangar for him and his new bride Ruth Sauers Brouse. The young Brouses then set up housekeeping in the apartment and raised their family there from 1948 until about 1953, when they moved into a new house across the street. Fred also continued to farm, and George Brouse started a land development and construction company. Water service to the apartment and the hangar came from a neighbor across the street. Fred Brouse tapped into the water well on the property owned by Donald Murray. Later a second hangar was built to the west. It was 60' square and taller than the first hangar with its 18' ceiling. Jess Hackenberg used this particular hangar, as did Joseph Lahout. Both were mechanics. The hangar had special overhead doors. The posts which supported the doors moved on rollers, allowing an aircraft with a 40' wingspan and a higher tail section to pass in and out of the hangar.

Hangar #1, built in 1948, is shown here before the Brouse apartment was added to the far (east) side.

This Beechcraft T-34 Navy Trainer is seen here in 1964. In the background one can see the east end of hangar #1, showing the Brouse apartment upstairs with a balcony and the Airport Office on the ground floor. (Courtesy of Melvin Reed)

This Grumman G44 Widgeon with Lycoming radial engines was an unusual sight at the Lewisburg airport in the mid-1960s. It stands beside hangar #1, next to the office. The Brouse apartment is visible as the second story. (Courtesy of Melvin Reed)

This Boeing Stearman towed the HAPPY BIRTHDAY JIMMY HOFFA banner over the penitentiary in the mid-1960s. It is parked at the back of hangar #2. (Courtesy of Melvin Reed)

The airport provided services to the local community of flyers and included sales, service, air taxi service, charter flights, and instruction. Marlyn "Barney" Aikey was hired as the first Chief Instructor and Business Manager at the Lewisburg Airport. Later the job was taken over by Dallas Hanlon. The airport served the needs for both transportation and pleasure, i.e., going for rides, often to take aerial photographs or merely to look out over the countryside. Jay Mathias of JPM Industries flew products to New York and Philadelphia out of the Lewisburg Airport. Dallas Hanlon was often the pilot.

Recreational fliers used the Lewisburg Airport for flights to photograph Lewisburg and the surrounding areas from the aircraft. This aerial view of Lewisburg shows Route 15 (top to bottom in the center). To the right, stacks of wood lie at the Pennsylvania House property near the railroad line. At the upper left, one can identify a three-story apartment building that once was the West Ward School. (Courtesy of the Union County Historical Society)

Gassing up the aircraft was not without its dangers. The gas was stored in 55-gallon drums. The gas was then pumped from the drum into the aircraft, which had to be grounded to avoid any sparks. In that early time, a solo flight of one-half hour duration cost $3.30. The instructor cost another $5.50. That sum was then taxed at $0.18. In 1955, a solo flight from Lewisburg to Danville and back took one hour.

Fred Brouse successfully completed his first solo flight on May 17th, 1949. He learned to fly at the Sunbury Airport. Marlyn Aikey was his instructor. Fred carefully recorded each of his flights from then on in a series of log books. By 1949, he belonged to the Aircraft Owners & Pilots Association, the State Council of Civil Defense, and the Civil Air Patrol. George Brouse and his son Fred then purchased their first plane, a Piper PA-11 Trainer, and by 1950, Fred had earned his pilot's license. Eventually Fred was certified for and received three aviation licenses: as a mechanic for airframe and power plant (1949), as a ground instructor (1949) and as a private pilot of a single

engine aircraft (1950). The Brouses eventually owned five aircraft. Several other people used the runway, including, Lester Reed, Dallas Hanlon, Warren Elze, Frank Hinish, Fred Kessler, and Dan Henry. Frank Hinish, owner of Prowant's Men's Clothing store on Market Street in Lewisburg, would often relax by flying his plane during his lunch hour. Fred Brouse reports that Lester Reed was a "corker of a pilot." Reed liked to do stunts and loops with the aircraft. Fred denies ever trying aerobatics himself, at least not voluntarily.

Fred Brouse reviews his log book from the late 1940s.
(Photo by M. L. Huffines)

On one particular winter day, the runway needed to be cleared of snow, which was then piled off to the side. After the runway had been cleared, Fred and Ruth Brouse boarded a Piper Pacer airplane to go for a ride. Unfortunately, Fred veered off the runway, into the snow, and flipped the aircraft. Fred recalls that no one was hurt except his pocketbook. He remembered yelling to Ruth, "Don't step on that gas gauge!" (The fuel tanks were located in the wings.) For Ruth, that was enough flying for that day.

Fred's grandmother, Agnes Brouse, at aged 72 took her first airplane ride from the Lewisburg Airport. Her pilot was Joseph Diblin, who flew a Piper Super Cruiser PA-12, which held 3 passengers. Fred reported that Grandma enjoyed the ride. Fred Brouse once flew to Hiawatha, Kansas, using a radio beam, and during the flight almost fell asleep. He ended up 50 miles from where he was supposed to be. His friend Harold Derk certainly never let him forget that flight. Over the years, Fred flew to Danville,

Williamsport, Reading, Scranton-Clark Summit, Ohio, Kansas, and Sioux Falls, North Dakota.

Agnes Brouse stands with her son George F. Brouse (left) and her grandson Fred W. Brouse (right) before being taken for a plane ride piloted by Joseph Diblin.

George F. Brouse, Fred W. Brouse, and Harold Derk are about to leave on their flight to Sioux City, North Dakota, in 1950. Fred Brouse and Harold Derk took turns piloting the aircraft, a Piper Pacer PA-20.

Not all flights ended happily. In November 1966, Dr. Philip W. Langford took off at 6:10 a.m. in a twin-engine airplane with his wife Lois and two Bucknell students as passengers. They were heading for a vacation trip in the Bahamas. David Mensch was also supposed to be on that flight as far as Miami, but he had to bow out at the last moment. Fred Brouse could hear the engine tell the story: on this cold morning, he

thought that Langford had tried to get into the air too fast. The plane stalled and lost lift. The plane crashed, killing all four people on board. It came down on the south side of Route 192 near Bull Run Crossing. Walt Bechtel and probably Max Gill secured the crash site for the fire company. It was later determined that the airframe of the craft had iced over, ground fog had reduced visibility to one-half mile, and that the pilot had done inadequate preflight preparation.

Joseph M. Lahout, a self-employed pilot, operated Lahout Air Services from the Lewisburg Airport through the 1960s. He owned a 1959 Piper Tri-Pacer aircraft, and he purchased and restored a World War II Aeronca Defender Observation airplane. He used these two airplanes to begin his career as a flight instructor and continued to train young pilots well into his retirement.

In the collection of the Union County Historical Society, a photograph shows a sign announcing a fly-in breakfast at the Lewisburg Airport, sponsored by the Civil Air Patrol. At airshows and similar events, flyers would gather socially and show off their aircraft to each other and spectators. Bill Piper, president of Piper Aircraft, was an occasional visitor. Dallas Hanlon flew the director of the award-winning Riley Raiders to and from Lewisburg for the annual Cavalcade of Bands at the Bucknell University stadium. It is clear that the airport was busy during the years of its existence, and it served a need in the community. The Lewisburg Airport was also used in the delivery of airmail.

A Fly-In Breakfast! One of the social events sponsored
by the Civil Air Patrol at the Lewisburg Airport facility.
(Courtesy of the Union County Historical Society)

Maintenance was an important service at the Lewisburg Airport. Lester L. Reed, Sr. (right) and Fred Brouse (left) work on Reed's Aeronca 7AC in hangar #1. The photo dates from 1952. (Courtesy of Melvin Reed)

A fly-in at the Lewisburg Airport in 1952. (Courtesy of Melvin Reed)

Governor William Scranton arrived at the Lewisburg Airport in this Beechcraft H-18 in 1964. (Courtesy of Melvin Reed)

The Penn Valley Airport at Selinsgrove directly affected the operation and existence of the Lewisburg Airport. Federal funds became available for the development of airports in smaller communities. Lewisburg was not eligible for these funds because the airport was technically privately owned. The commissioners, who would have normally supported the case for the Lewisburg Airport, threw their support to Selinsgrove. The Selinsgrove Airport received the funding, which ultimately resulted in bringing the operations at the Lewisburg Airport to an end. The Lewisburg Airport did not have a cement runway, and that limited its revenue. By 1975, Brouse Enterprises, heirs to the George F. Brouse estate, made the decision to close the airport. The Lewisburg Airport had operated for about 25 years.

In 1979, Brouse Enterprises sold 1.179 acres of runway land to the Northumberland County Industrial Development Authority, which sold it to D & R Realty. SUN Orthopedic now occupies that site, which was once the beginning of the runway. In 1987, Brouse Enterprises sold 1.179 acres to the Mifflinburg Bank and Trust Company, and its Lewisburg branch now occupies that site. In 1988, Brouse Enterprises sold land to the Buffalo Valley Telephone Company, which then sold 56.439 acres to Dale and Joan Miller, owners of Playworld Systems, which now occupies the site, once the end of the runway. Dale Miller had promised not to cut down the stand of oak trees in front of the Playworld building. The oaks were called Brouse's Grove, where the Brouse family would hold picnics and family reunions. Also later in 1988, the Telephone Company sold 7 acres to St. John's United Church of Christ, and its church building now sits on that site.

Keiser's Plumbing and Heating and Keiser's Sporting Good (called Out 'N' About) rented half of the hangar #1 building when it no longer housed aircraft. The hangar was razed in 2003. Mifflinburg Bank razed hangar #2 for its Lewisburg branch, which opened in 1991.

Hangar #1 shortly before it was razed in 2003.
(Courtesy of Melvin Reed)

The Lewisburg Airport, for its time, provided needed services to individual hobbyists as well as transportation to local business concerns. The street signs now offer the only clue to this piece of Lewisburg history, and those who remember it can relive the dream to fly like birds over Lewisburg in their memories.

(Photos by M.L. Huffines)

Notes

1. The Lewisburg area experienced other notable aerial events not necessarily associated with the Lewisburg Airport. Paul Herman was reputed to have flown under the old Lewisburg steel bridge in a single engine aircraft in the 1940s. Drew Machamer and John Bernhart buzzed Lewisburg with an old World War II fighter; both were disciplined by the military for doing so. Machamer has since been responsible for having a World War II B-25 bomber fly over Lewisburg at the beginning of the annual Lewisburg Veterans Parade. The aircraft is owned by the Mid-Atlantic Air Museum of Reading, PA.

2. All photographs are courtesy of Ruth and Fred Brouse unless otherwise indicated.

3. The author thanks Melvin Reed for the use of his photographs and his research in ferreting out information to fill in gaps. The author also thanks Mr. and Mrs. Frank Hinish for their help.

✂ ACCOUNTS ✂

The Shape of Time in Buffalo Valley:
Traditional Barn Building in Union County
by
Christopher Macneal, AIA

The most memorable vernacular buildings in Buffalo Valley are the hundreds of nineteenth and early twentieth century barns that occupy its landscape[1]. Large and weather-worn, set into hillsides and oriented to greet the morning sun, these structures present the farm to the passing world. One thing that is apparent from looking at old barns in Buffalo Valley is that they share common traits of form and construction, but with myriad variations. No two are identical, yet as a group they show the influence of a barn building tradition that persisted over many generations, from the period of settlement through the early 20th century. While the practice of farming underwent enormous transformation during this period, many characteristics of the traditional form and construction of barns remained resistant to change, or were able to accommodate and adapt to change in ways that preserved strong continuity with the past.

This article will consider barns in Buffalo Valley as the markers of a gradually evolving building tradition. Why barns? Like houses, they are richly informative artifacts —a primary document of the culture and history of a place. But looking at barns reveals different aspects about the past than looking at houses. Whereas comparison of 19th century Union County houses demonstrates the extent to which families worked to retain ethnic identity in a diverse society, barns speak to the process of assimilation in the economic realm, as distinct communities separated by language, customs and religious faiths merged to form a common society.

Defining the characteristics of a local building tradition requires examination of a broad sample of evidence. Barn builders worked largely without written records, so to study their practice we primarily use the buildings themselves—seeking to understand the ideas which formed them. This article draws on evidence from a survey that I conducted over the course of a summer and fall nearly thirty years ago to record the architectural characteristics of farmhouses, barns and outbuildings in Union County, and in many

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[1] The term 'vernacular' applied to buildings refers to architecture which is indigenous to a place and rooted in tradition.

discussions in the years since with the owners of old barns. By comparing barns we can discern common traits of form and construction and attempt to define a chronology of ideas which guided builders working within the tradition.

There are two immediate challenges with doing this, however. The conception and construction of even a simple barn does not emerge from a single idea, but rather from a complex of intentions about the building location and orientation, size, structure, materials, and internal organization. Each of these intentions is affected by its own set of considerations and potential solutions subject to differing rates of change.[2] Compounding this, the second challenge is that barns are not static structures, but prone to alteration over time. In fact, alteration and addition is a fundamental characteristic of barns—it is in their nature to be adapted as farming practices and the needs of the owners evolve. Therefore, the challenge in studying building traditions is to develop a model for analyzing evidence from buildings which acknowledges the multi-faceted nature and variable pace of change in builder's practices, as well as subsequent alteration to buildings after initial construction.

Common traits of the form of traditional barns are used to define building types, "type" designating a basic plan with a set of consistent characteristics which may be constructed using different materials and techniques. This definition of type based on patterns of shared form is an attempt to approximate the concept in the mind of the builder which guided the planning of the barn as a solution to specific requirements. Profoundly utilitarian structures, barns are essentially tools which reflect the intentions and needs of farmers, organizing space for storing crops and stabling livestock, facilitating the daily work of the farm and processing of the harvest. [3]

Thinking of the barn as a tool shaped in response to a farmer's requirements and circumstances helps us to understand the relationship between building tradition and farming practice. The changing size and configuration of barns in Buffalo Valley records the impact of economic and technological change within the region's evolving farming systems.[4] Barns in use today have been modified multiple times to adapt to shifting

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[2] George Kubler, The Shape of Time: Remarks on the History of Things, Yale University Press, 1962.

[3] John Fraisier Hart, "On the Classification of Barns", Material Culture, Vol. 26 (1994), No. 3

[4] A 'farming system' consists of the natural, economic, cultural, social and political conditions which form the context for agricultural activity. The concept of historic and regional 'farming systems' in Pennsylvania is discussed at length in "Historical Agricultural Resources of Pennsylvania 1700-1960", Pennsylvania Historical and Museum Commission, (http://phmc.info/aghistory)

farming practices, but these shifts have been so extensive in the 20th century that many barns have fallen into disuse and are gradually disappearing from the landscape.

18th Century Barns

The roots of this building tradition are difficult to assess because the built evidence is incomplete. Very few barns survive from Buffalo Valley's early settlement period at the close of the 18th century, and those which have are much altered, so we must look to other types of evidence such as tax records to supplement our understanding of the built environment of that time. John Blair Linn's Annals of Buffalo Valley contains a 1796 enumeration of occupations and improvements of the taxable inhabitants of West Buffalo and White Deer Townships which is helpful in this regard. While the information is limited to very brief descriptions, it provides a glimpse of the condition of farms in the community during the first generation of settlement.

While most of the agricultural land in Buffalo Valley was purchased by 1796 and much of it already under cultivation, the majority of farmers had not yet constructed a barn. The improvements of over three quarters of the assessed occupants include a dwelling, but only about 15% owned a barn and 9% a stable. All of the barns and stables, as well as the great majority of the houses are listed as log construction. Slightly less than half of heads of household indicated their occupation as 'farmer', and of these more than two-thirds did not own a barn, (see Table 1).

Table 1: Agricultural Buildings Listed in 1796 Assessment

	taxables	farmers	barns	stables	Spring houses	still houses	farmers w/o barn
West Buffalo Twp	204	99	28	11	6	2	76
(% of total)		48.5%	13.7%	5.4%			76.8%
White Deer Twp	175	78	30	24	0	11	53
(% of total)		44.6%	17.1%	13.7%			67.9%

Source: Linn, Annals of Buffalo Valley, (Harrisburg, PA, 1877), pp 301 – 308. In 1796, West Buffalo Township included modern Hartley, Lewis & Limestone Townships. White Deer Township included modern Kelly Township.

a. Single-crib ground barn near White Spring

b. Same barn from west, with added frame bays

c. Double-crib ground barn near White Spring

d. Same barn from east

e. Double-crib bank barn near Mifflinburg

f. Same barn from south east

Figure 1 Log Barns in Limestone and West Buffalo Townships, Union County. The two barns near White Spring, photographed in 1984, have since been demolished.

The 1796 assessments provide evidence of barn construction and form. The West Buffalo assessor included construction material in his description of property improvements, indicating all of the barns listed were constructed of horizontal log. He described 15 barns as 'round log', 8 as 'hewed log', and the remainder as 'chipped log' or 'scutched log', indicating the amount of effort and labor put into transforming the logs from their natural 'round' condition into more refined rectangular hewn form.[5] The West Buffalo assessor uses the term 'cabin barn' in four instances and 'cabin stable' once. The White Deer assessor used three different terms to describe barns on the assessed properties, distinguishing between 12 'barns', 17 'double barns' and one 'bank barn'.

Comparing these assessment lists to contemporary records for Lancaster and Berks Counties we find fewer and smaller agricultural buildings in Buffalo Valley at the close of the 18th century than in the older farming communities of the southeastern counties. The simplest and most expedient of these, a 'cabin barn', was a small log building used for storage of fodder and sheaves of un-threshed grain crops. The White Deer assessor may have used the term 'barn' (as opposed to 'double barn') to indicate this type of single crib log structure. The assessment evidence records farmsteads of cabins and small barns more closely resembling building types preserved in the southern Appalachian Mountains than the large houses and barns that replaced them in central Pennsylvania during the 19th century.

To interpret the architectural remnants of this early settlement landscape, it is necessary to understand the context of the distinctive settlement period agricultural economy. In 1796, eighteen years after the Great Runaway, Buffalo valley was a young but steadily growing farming community, no longer on the frontier. The overall population density in the region at the close of the eighteenth century was still under twenty persons per square mile, too rural to offer a significant local market for agricultural production, but this was a period of increasing grain exports to Europe which inflated the price of wheat and provided an expanding cash economy for farms with access to transportation. Buffalo Valley farmers benefitted from the proximity of the Susquehanna River, which they

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[5] 'Scutched' was a term from processing flax for the removal of outer plant fiber, so it probably indicated stripping of bark. 'Chipped' indicates the logs were roughly shaped on two sides with an axe. 'Hewed' logs were worked with an axe and adze to produce timbers with straight, smooth surfaces.

navigated on large, flat-bottomed 'arks' during high water in the spring to carry barrels of milled flour, grain and whiskey to Middletown, Columbia and even Baltimore.

Tenant farming was prevalent in the settlement period, as farmers without means to acquire land rented property from speculators and resident land owners. Farm families exchanged goods, services, products and labor within their local communities and sent goods to distant markets, pursuing an extremely varied range of enterprises and creating a diverse exchange network to obtain necessities and amenities. [6]

While warrants and property deeds recorded in Buffalo Valley during the first generation of settlement averaged about 125 acres in size, early tax assessments indicate the amount of land cleared and under cultivation in this period was a fraction of the total holding. Converting woodland to cleared, tillable fields proceeded at a rate of about 30 acres per farm per decade. In addition to growing produce for the homestead and local trade, farmers planted the small fields of the early settlement period with crops that would bring the highest return—primarily small grains. Travelling through the region in 1794, William Davy, an English land speculator, recorded his observations of crops grown on farms:

> I find Wheat is sown here in the Fall (beging. of Septr.) Clover & timothy Grass
> is generally sown with it. The Wheat is cut in June or beginning of July after
> which the Grass grows very rapid & always affords two Crops. Where Grass
> has not been sown they harrow the Ground well where the Wheat is taken off &
> sow Buck Wheat which ripens by the beginning & through September is
> excellent food for Poultry & Cattle & makes good Cakes.[7]

Fall-sown wheat and rye, harvested in July and threshed out in late autumn were the main crops, consumed on the farm, but also exported to market as grain, flour and whiskey. Many farmers also planted spring grains: oats, buckwheat, Indian corn and barley; grasses and legumes for forage and hay; hemp and flax for fiber and oil; orchards for dried fruit and cider; gardens for potatoes, turnips and other vegetables.[8] Tax records

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[6] "Historical Agricultural Resources of Pennsylvania 1700-1960", PHMC
[7] Norman B. Wilkinson (ed.), "Mr. Davy's Diary," *Pennsylvania History*, 20 (1953), p.259.
[8] Stevenson Fletcher, Pennsylvania Agriculture and Country Life, 1640-1840, Pennsylvania Historical and Museum Commission, 1971

indicate most farms had only a few horses and cows, seldom more than two. Hogs and cattle initially were allowed to free range, captured in the fall for butchering. Horses were kept in stables rather than in barns, which were used primarily for storing and processing grain. Many farmers did without a barn for several years while clearing land, storing grain within the house.

Buffalo Valley barn builders at the end of the 18th century organized space around the work of storing and processing grain: providing space to dry harvested crops under shelter and a floor for threshing with a flail to separate grain from the straw. In many barns they also provided stable and manger space for livestock below or adjacent to 'mow' spaces for storing fodder. The manner in which these various functional requirements were addressed depended at first on the origin of settlers and the farming practices they brought with them.   Scots-Irish farmers who composed a majority of the earliest settlers initially perpetuated a northern Irish pattern of small, single-use structures in separate buildings: cow byre or stable, hay barn, still house. Stone masonry construction typical in northern Ireland was replaced in central Pennsylvania by horizontal log, but cabins and barns retained the narrow gable width and single story form of traditional Ulster farms. These were intended as provisional, temporary structures, often built expediently with unhewn 'round' logs, with minimal or no foundations. Any single-crib log barns that survive from this period have been incorporated into larger structures by subsequent addition and rebuilding.   For example, a small single-crib log barn in Limestone Township on Creek Road, (see figure 1a and b), was expanded by later frame additions into a three-bay structure, transforming it into what the White Deer assessor termed a 'double barn'.

Ground Barns

German-speaking immigrants from central Europe made up a smaller portion of the initial settlement of Buffalo Valley than the Ulster Scots, but they remained in the area and acquired farms to such an extent that by the start of the 19th century the rural population in the southern townships of Union County was mostly Pennsylvania German. German speaking farmers introduced two versions of a three-bay barn type, consisting of storage mows flanking a central threshing floor. A 'mow' was a space for storing loosely piled hay for feed and straw for animal bedding, as well as stacked sheaves of wheat, oats, rye or

barley before the grain was threshed out. Threshing with a hand flail required an open space about 16 feet wide with tightly fit wood floor planks--the 'threshing floor'.

The smaller version of the German barn was called a Grundscheier or 'ground barn' because it was built without a basement, with all points of entry at ground level. Ground barns were rectangular in plan with a gable roof. Larger than a cabin barn, with a storage bay to either side of a threshing floor, it was also known as a 'double barn' or 'double crib barn'.   The bays flanking the threshing floor were often divided vertically into stable space at ground level with a hay mow above. In the Rhineland Palatinate region that many Pennsylvania Germans originally migrated from this barn type was built of stone or half-timbered construction and was often connected to the dwelling, but in Buffalo Valley it was built of horizontal log or frame as a free-standing structure.

Ground barns have minimal foundations, but the wood plank threshing floor of the center bay was usually raised above the level of the flanking bays, which often had dirt floors. Figure 2 shows plan and sections of the Shively barn, a late 18th century double crib log barn with frame shed extensions, formerly located near White Springs (see photos 1c and 1d).   This barn had 22' x 28' log cribs flanking the center floor, divided into two levels with stable space below and hay mows above. A section of the log cribs facing the center floor was cut out for an opening into the hay mow, with a low door below for access to the stable level, which was two feet lower than the threshing floor. Shed roof extensions on the front and back of the barn provided additional space for storing straw and fodder, and a sheltered enclosure at stable level in front of the north crib. Large hinged wagon doors opened to the threshing floor from the back (west) side, while smaller doors on the front open to the barn yard. In overall form and many details the Shively barn resembles log ground barns documented in south-central Pennsylvania. [9]   The stall arrangement and gable end location of the stable doors is different, but this could be due to modifications of the original structure. Looking at the log cribs of old barns one inevitably finds cut and patched sections from generations of farmers altering and refining the buildings to fit changing needs.

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[9] Henry Glassie, "The Double Crib Barn in South Central Pennsylvania", Pioneer America, vol 2, no.2 (July 1970), p 24.

a. Longitudinal section

b. Cross section at threshing floor

mow level

threshing floor
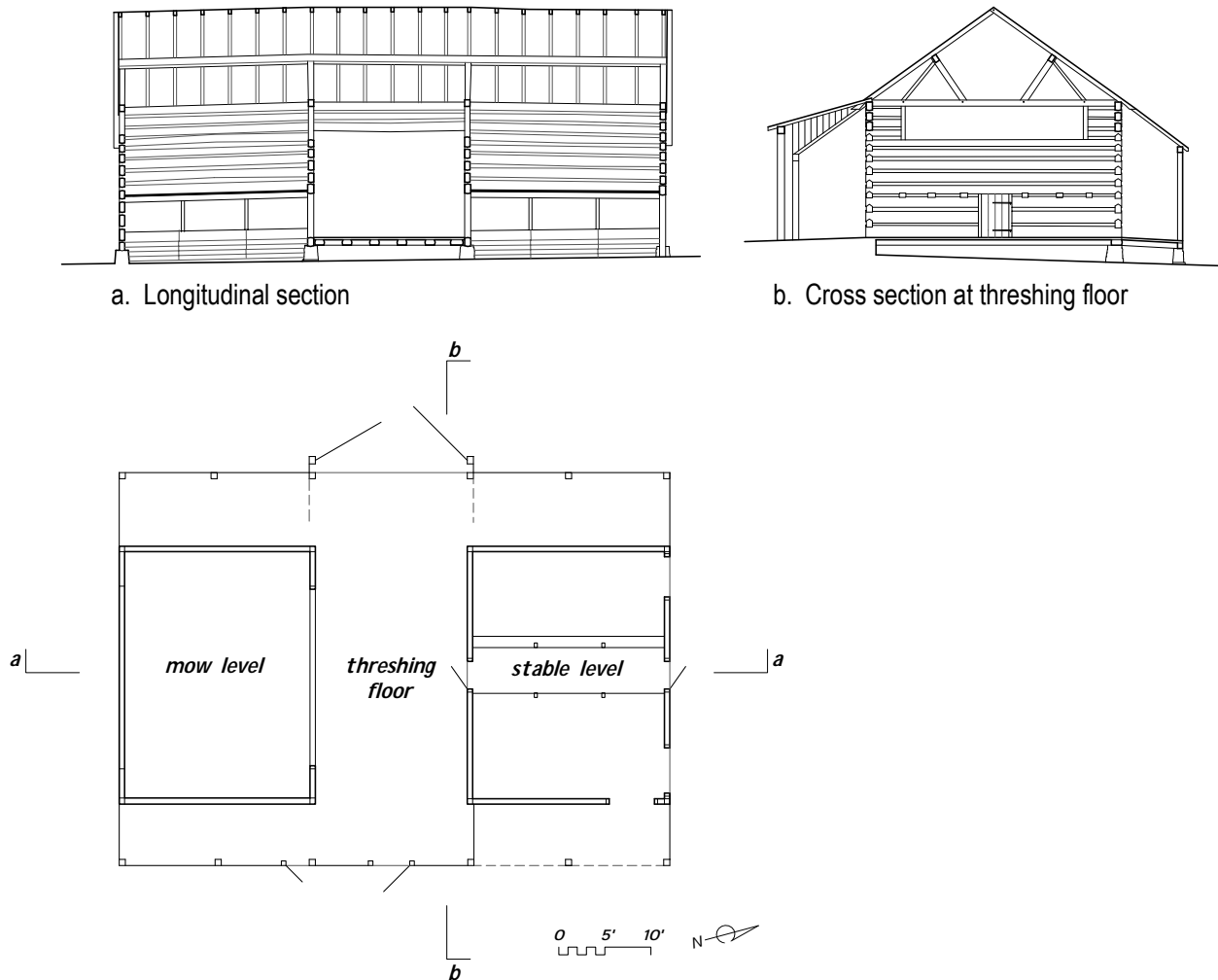
stable level

0   5'   10'   N

Figure 2 Plan and sections of the Shively barn, a double crib log ground barn in Limestone Township, Union County from photos and measurements taken in 1984. Barn has since been demolished. Plan shows stall level on the right and the mow level above the stalls on the left. The threshing floor in center is raised two feet above the grade level stalls. Shed roof extensions across the front and rear of the barn appear to be early additions.

While all of the barns listed in the 1796 assessment were built of horizontal log, the double crib ground barn type was also built in braced frame construction which first supplemented, then replaced, log construction in the 19th century. Figure 3 shows a small double crib barn of mortise and tennon frame which has been expanded by adding a fourth bay to the west end, containing a mow above and stable below, with a covered extension on the barnyard side, and a more recent in-line shed roof stable addition. The original threshing floor is now used for hay storage since the building has been converted to a horse boarding barn. Change of use over time results in alteration of the barn form, but the original concept of a central threshing floor flanked by mows remains legible. The ground barn type lends itself to expansion by adding bays and sheds, and most ground

barns have been enlarged as farming practices have changed. This openness to change and adaptive re-use through addition and alteration is a fundamental principle of a building tradition in which the form of the barn does not result from a single act of construction, but from a process of continual refinement, repair and rebuilding by a succession of farm owners.
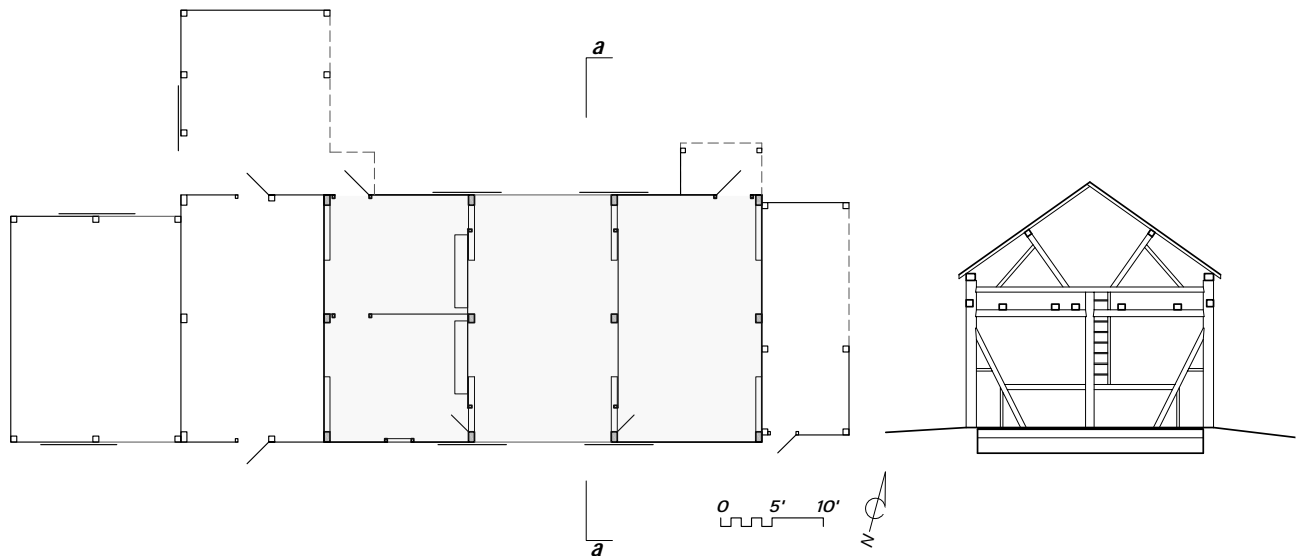

Figure 3 Plan, section and photos of a frame double crib ground barn, Limestone Township, Union County, surveyed in 2012. Shaded portion of the plan indicates the original, early 19th century three bay construction, with subsequent in-line and perpendicular additions. Most of the barn frame is mill sawn, but longer members such as loft beams and roof purlins are hewn.

Variations on the double crib form of the ground barn in Buffalo Valley indicate that the building type was conceptually manipulated to produce a smaller two-bay barn consisting of the threshing floor and a single flanking mow, a two-thirds version of the usual double crib form (see figure 4b and c). Some three bay ground barns in the valley

appear to have been expanded from this two-thirds form. The ground barn building type is therefore a scalable concept, capable of addressing a range of farm size; however there appear to be functional limits on its use as farm operations expanded and became increasingly mechanized. The ground barn type and its two thirds variant continued to be built on smaller farms and at the back of town lots well into the 19th century, but expansion of ground barns beyond the three-bay form is limited. The average size of Buffalo Valley ground barns is 45 feet wide by 30 feet long, and the largest expanded ground barn with bays added on either end is 84 by 34 feet. For larger barns, farmers looked to a different barn type.

a. Double-crib frame ground barn north of Mifflinburg

b. Two-bay frame ground barn in Cowan

c. Two-bay frame ground barn south of Winfield

d. One-bay frame ground barn south of Furnace Road

Figure 4 Variations on the ground barn type. Barn a) extends the three-bay form with in-line shed roof additions for implement storage on the left and additional stable space on right. Barn b) recesses the stable level front doors to create a sheltered forebay. Barns c) is a small two-thirds versions of the double-crib barn, consisting of one stable/hay mow bay next to a threshing floor, with an in line shed roof addition. Barn d) is a single frame bay containing stable space below and mow above, without a threshing floor.

Mapping the locations of surviving ground barns in Buffalo Valley reveals two patterns of distribution, (see figure 5). Ground barns are situated in or near to villages and towns, where their size was well suited to small farms owned by tradesmen and merchants. The rural building survey used to generate this map does not include buildings within the incorporated boundaries of towns, but it does indicate clusters of ground barns at the outskirts of Lewisburg and in the vicinity of Cowan and Mifflinburg. If small barns on the back alleys of Hartleton, Mazzepa and Vicksburg were added to the map, this 'urban' distribution would read more clearly. A second distribution pattern more evident from the map is location on marginal farm land at the edges of the valley. Ground barns remain on the north side of the valley along the skirts of Jones and Buffalo Mountains, on the

Figure 5 Map of ground barns in Buffalo Valley based on survey of surviving pre-20th century rural buildings. Squares indicate double crib barns, triangles indicate 2-bay variant. Open shape indicates log construction; solid fill indicates frame.

(Most of the survey was conducted in the mid-1980s, so some structures have since been demolished. Survey data for White Deer and Gregg Townships is incomplete and not included on the map).

shoulders of Shamokin ridge and at steep slopes on the south side of Dry Valley in Union Township. These edge of valley farms on poor to medium cropland with shale derived soils never experienced the prosperity of the mid valley farms. Discussing the challenge of farming on shallow, shale-based soils, a USDA Soil Survey for Union County concludes "Abandoned fields and farms are numerous".[10]

Bank Barns

Among the earliest German speaking families to settle in Pennsylvania were farmers who came from Alpine valleys in what is now Switzerland. They introduced the distinctive two-level 'Sweitzer' barn to south central Pennsylvania by the middle of the 18th century. In plan, the main level of this barn type was similar to the ground barn, with a threshing floor flanked by mows, but the Sweitzer barn was constructed with a full basement level stable, and the threshing floor extends to create a projecting Vorschuss or 'forebay' sheltering the stable doors. Sweitzer barns were built into a hillside or provided with a ramp to allow wagon access to the upper level floor and mows, and were therefore referred to as 'bank barns'. The 1796 assessment mentions only one bank barn, so the barn type may not have been used extensively by the first generation of Buffalo Valley farmers, but by 1820 it was the predominant barn form in the valley.

Two examples of early log bank barns illustrate several important changes from the ground barn type, (see figures 6 and 7). Bank barns took more time and effort to build, requiring extensive masonry work to prepare basement foundations, but this investment provided an entire lower level for livestock, and an entire upper level for storing and processing crops. Whereas the ground barn type in Buffalo Valley exhibits limited potential for expansion from its three-bay plan and smaller two/thirds version, the bank barn type developed three, four, five and a few six-bay versions to produce much larger barns in the initial phase of construction, with the same potential for later expansion by added bays, sheds and entire wings. Like the ground barn, the bank barn was a scalable concept, but one oriented to growth by addition of bays. The most common bank barn plan in Buffalo Valley is the four bay, mow-floor-floor-mow version. In the four bay barns, one of the two middle bays is the threshing floor, its sides lined with boards to contain

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[10] David Taylor, Alfred Boileau and Gerald Yoder, Soil Survey of Union County, Pennsylvania, (USDA series 1940, No.2, 1946), p99.

threshing activity, while the other is used for unloading wagons and storing implements. The second most common bank barn plan is the five bay, mow-floor-floor-floor-mow version, (see figures 9 and 10) in which the center bay is usually the threshing floor, with wagon floors to either side. In both of these plan types additional temporary mow space was created by the farmer when needed by inserting beams and planks to span across the framed bays about twelve feet above the barn floor, providing overhead mows while keeping the barn floor level open for work and storage of implements and rolling stock.[11]

a. Cross section at threshing floor   b. Cross section at wagon floor
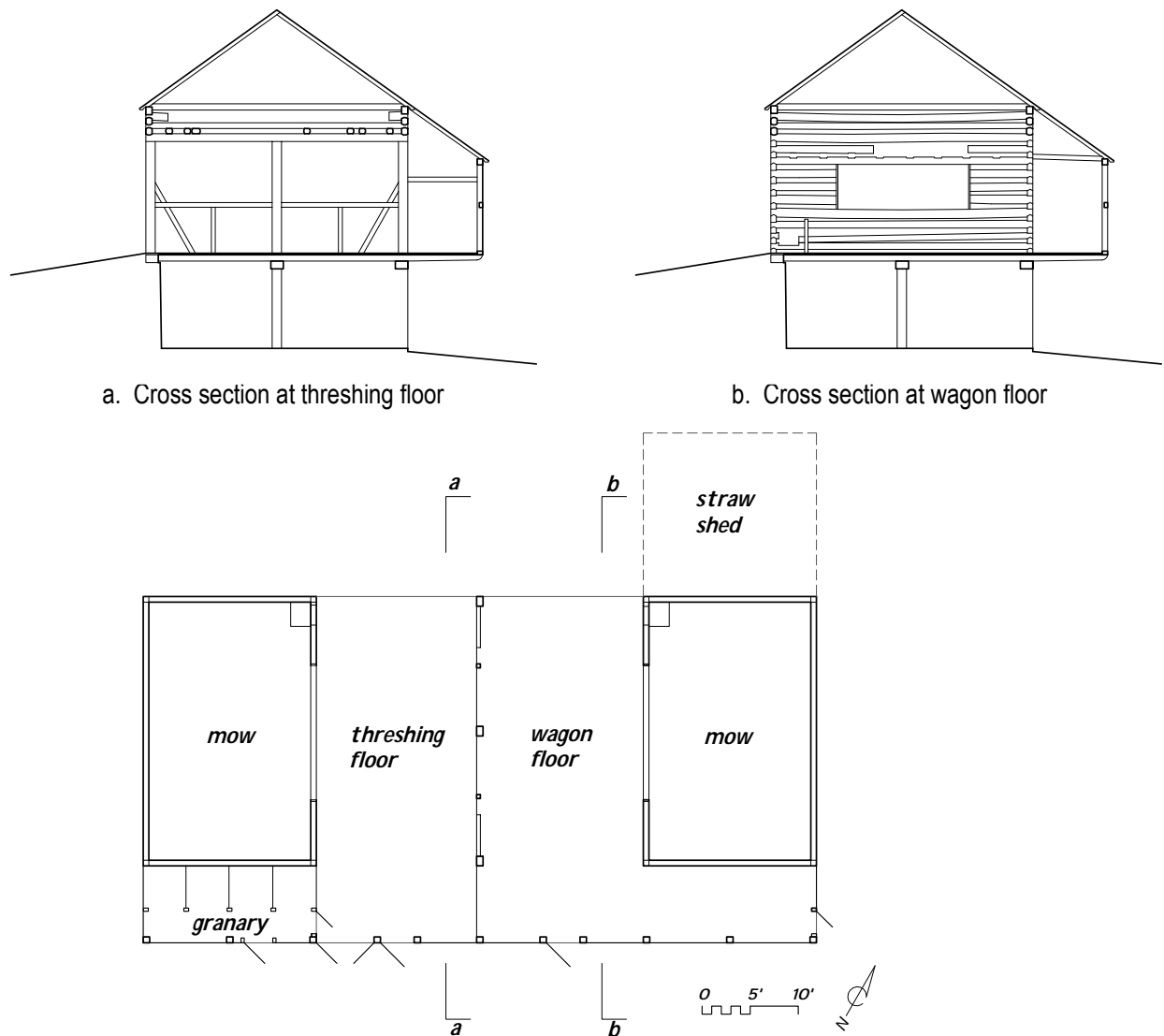
Figure 6 Upper level plan and sections of the Shoemaker barn, a double crib log bank barn in West Buffalo Township, from photos and measurements taken in 2013. See figure 1e and f for photos. The central floor of this barn is two bays in width, divided by a frame 'bent'. Section a shows the framing bent configuration. The granary is located in the west end of the forebay, adjacent to the threshing floor. The barn used to have a frame straw shed addition on the back side of the east mow.

[11] For more information on the development of the Pennsylvania bank barn, see Robert Ensminger, The Pennsylvania Barn, Its Origin, Evolution and Distribution in North America, Baltimore (John Hopkins University) 1992.
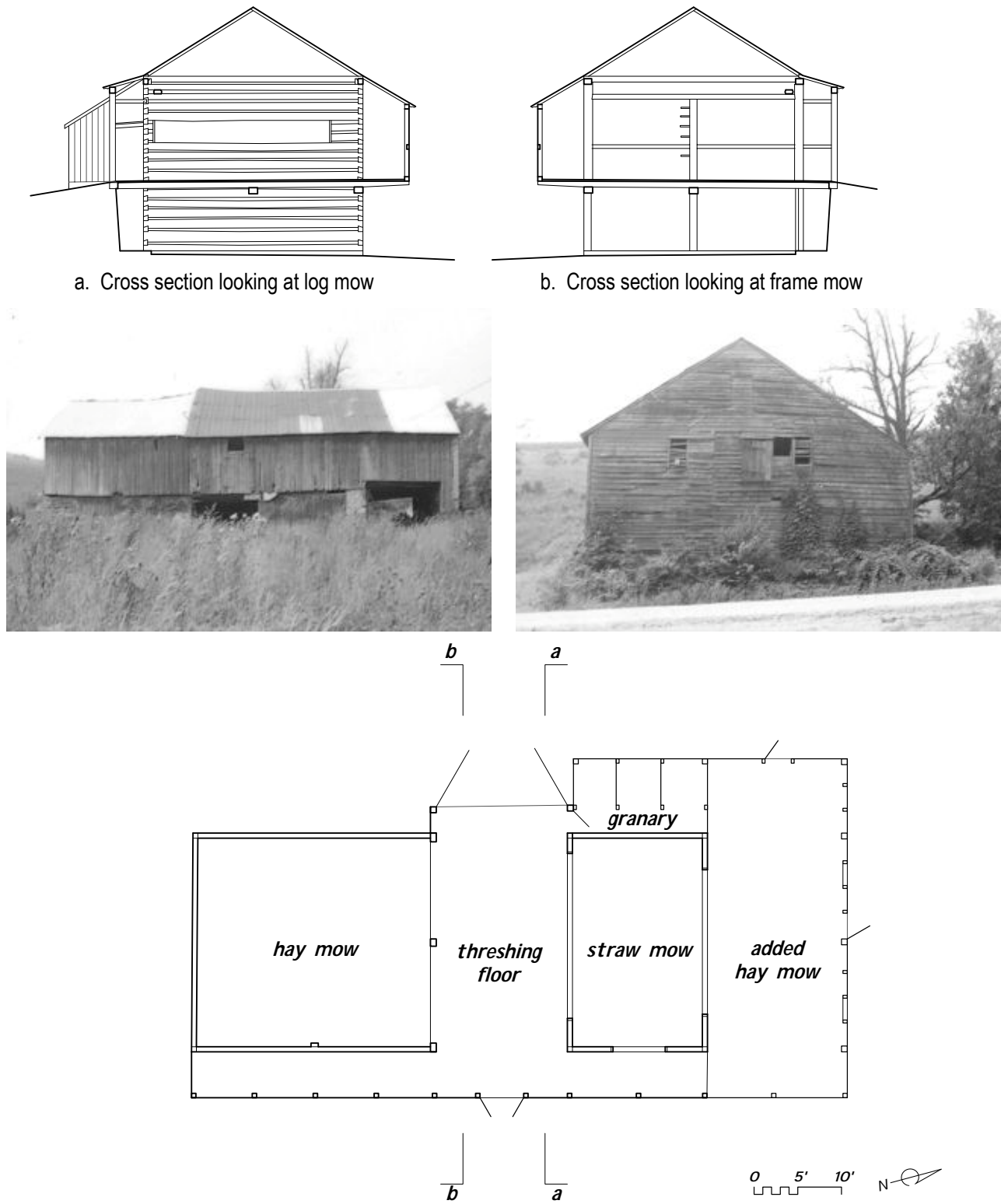
a. Cross section looking at log mow

b. Cross section looking at frame mow

b   a

granary

hay mow   threshing floor   straw mow   added hay mow

0   5'   10'   N

b   a

Figure 7 Upper level plan, cross sections and photos of a double crib log bank barn south of Forrest Hill in West Buffalo Township, surveyed in 1984. This barn had an unusually large 25' x 28' log crib hay mow in which the wall facing the threshing floor was a hewn timber frame. Section b shows the frame wall configuration. The granary was located in a shed addition on the back side of the straw mow. In the late 19th century an additional frame bay containing mow space above and implement storage below was added to the north side of the barn. In poor condition when it was surveyed, this barn has since been demolished.

Built primarily by southeastern Pennsylvania German farmers in the 18th century, by the time that construction of bank barns spread to the valleys of central Pennsylvania in the early 19th century the barn type was coming into general use across ethnic boundaries, by farmers of English and Scots-Irish ancestry. The widespread adoption of the large, multi-level barn type in Buffalo Valley reflects the growth of farms, many now in the second or third generation of ownership, and the development of an economic network of farmers increasingly oriented to producing a 'marketable surplus'. In 1820, this marketable surplus accounted for about 20% of farm products in the north-east, but this ratio varied depending on farm productivity and the cost of transporting goods to market.[12] Susquehanna River transport which benefitted early settlement grew into a major thoroughfare for agricultural shipping, as great quantities of grain were floated downstream in arks and flatboats to Middletown (just south of Harrisburg), and then conveyed overland by wagon on the Lancaster Turnpike to Philadelphia. Extension of the West Branch canal to Lewisburg in 1833 further reduced transportation costs, prompting mid-century investment in larger barns.

Buffalo Valley farmers selected their products, other than for home use, primarily for ease of transportation to these distant markets. In 1825, the New Berlin Union Times reported "Union County sends annually to market a surplus of about 150,000 bushels of wheat, 2,800 barrels of whiskey, 6,000 bushels of clover seed, 200 tons of pork."[13] In this farming system fed by the most portable and durable commodities, wheat continued to dominate through mid-century, supplemented and gradually supplanted by livestock. The expandable bank barn, accommodating increasing harvests of grain and fodder for a growing number of livestock suited this system perfectly.

The two-level design of bank barns introduced critical adjacencies between quarters for livestock, crop and fodder storage and the workspaces of the farm laborers in a manner that exploited gravity, sunlight and air movement to assist the enormous amount of human toil that went into operating the farm. The lower level of the barn was ingeniously planned to allow people to work safely among and control large and sometimes unpredictable animals, (figures 8a and b). Cow and horse stalls and gated doors to the

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[12] Clarence Danhof, Change in Agriculture in the Northern United States, 1820-1870, Cambridge (Harvard University Press) 1969, p4-6.
[13] Fletcher, p 291.

barnyard were interspersed with aisles for people to traverse while feeding, milking and mucking out manure. Ramped wagon access to hay mows located above the livestock stalls enabled farmers to drop fodder and bedding to the stable level through chutes and floor openings. Orienting the front of the barn to face south-east provided morning sunlight and warmth at the stable level, while the overhanging forebay provided weather protection and shade from intense mid-day summer sun. The sheltered forebay overhang also kept the ground in front of the stable entrance from being churned into a muddy wallow by the passage of livestock out to the barn yard.

a. South-facing forebay   b. Feeding aisle and horse stalls   c. Tri-level door at threshing floor

Figure 8 Barn building strategies for controlling the natural world include solar orientation and shelter of outdoor work areas, separation of human and animal circulation in the lower level, and devices to promote and manipulate natural ventilation. Forebay a) is at the Maize/Renninger barn east of New Berlin. Preserved lower level stalls b) are at the Barber/Rippon barn in White Springs. Three-level threshing floor door and ventilators c) are on the Baker/Snyder barn in Cowan.

Airflow through the upper level of the barn could be controlled and tuned by opening the large wagon doors on the shaded back of the barn in combination with the tall, narrow ventilation doors on the sun warmed front of the barn to induce breeze. This natural ventilation system was used to promote drying of hay and harvested grain crops, and during the threshing and winnowing process to separate light chaff from heavier grain. Many bank barns have two- or three-section doors on the barnyard side of the threshing floor for variable control of cross ventilation, (figure 8c). When mechanized threshing replaced hand flails in the mid 19th century, the threshing machine was still pulled onto the
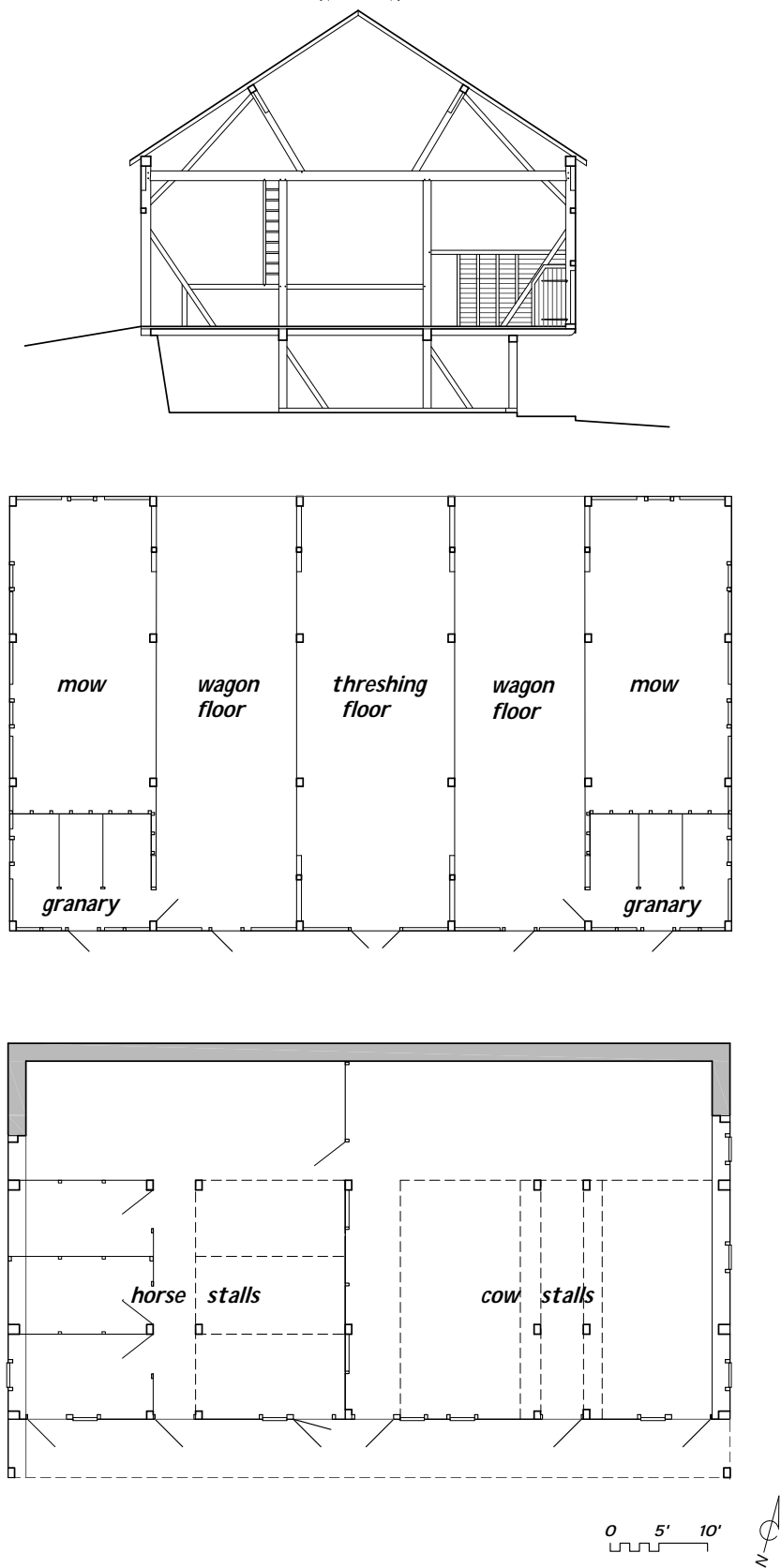
mow

wagon
floor

threshing
floor

wagon
floor

mow

granary

granary

horse   stalls

cow   stalls

0   5'   10'

N

Figure 9a Upper and lower level plans and cross section of the Byler/Showalter bank barn near Cowan, Buffalo Township, surveyed in 1985. Lower level contained horse stalls on left and cow stalls on the right. Upper level had granaries at both ends of the forebay.
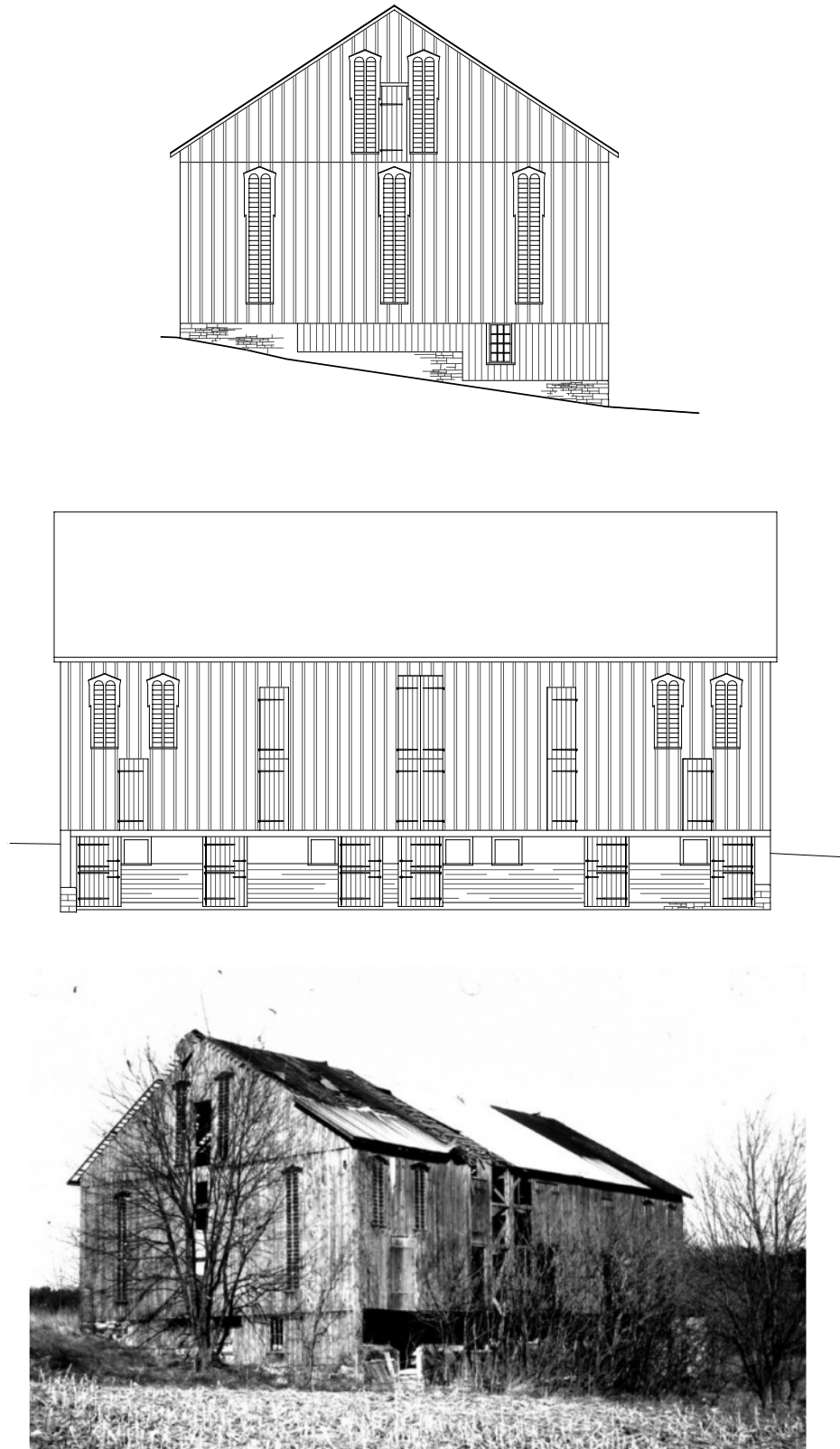
Figure 9b Front and west gable end elevations and photo of Byler/Showalter bank barn near Cowan, Buffalo Township. The cladding and louvers of the barn probably date from the 1870s or later, but the barn frame appears to be older. This barn has since been demolished.

mow

wagon floor

threshing floor

wagon floor

mow

granary

0   5'   10'

N
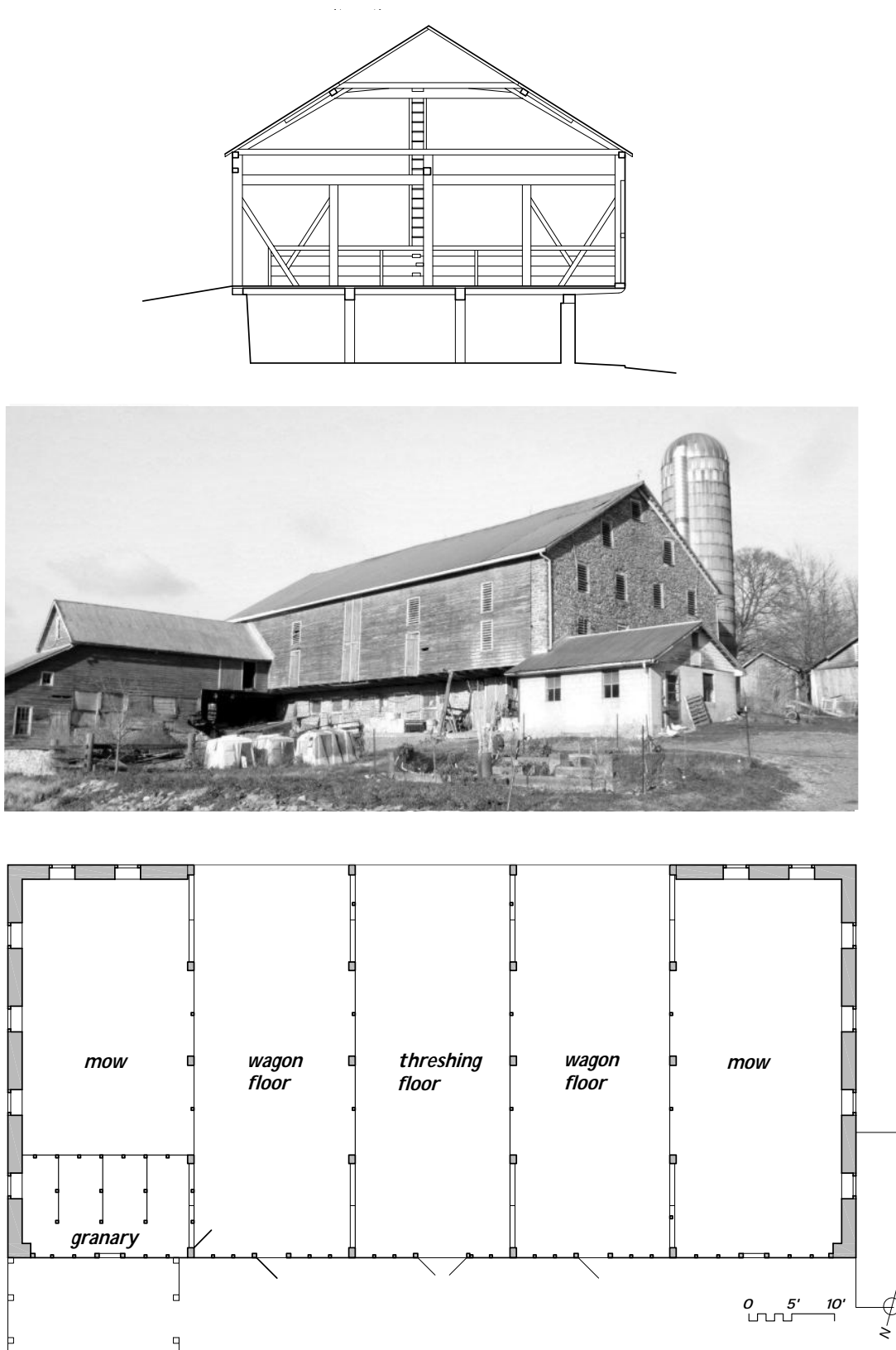
Figure 10 Upper level plan, cross section and photo of the 5-bay stone end Abraham Maize barn in Union Township, built 1819. The eight remaining stone barns in Buffalo Valley are the pinnacle of the barn building tradition. This one, two miles east of New Berlin, is well preserved.

barn floor so that it could be fed with sheaves from the mow and discharge straw and chaff out to the barnyard. The granary for storing threshed wheat and oats was located away from the damp in the dry and sun-warmed forebay, enclosed with tightly sheathed boards and sometimes lined with tin in attempt to exclude mice.

The technique of log construction used for the early barns was imported from forested areas of central and northern Europe, and proliferated in Pennsylvania forests into several regionally distinct styles, based on the shape of the interlocking corner notches

a. Half dovetail, Emmental, Switzerland   b. Half dovetail, West Buffalo Twp.   c. V-notch, Limestone Twp.
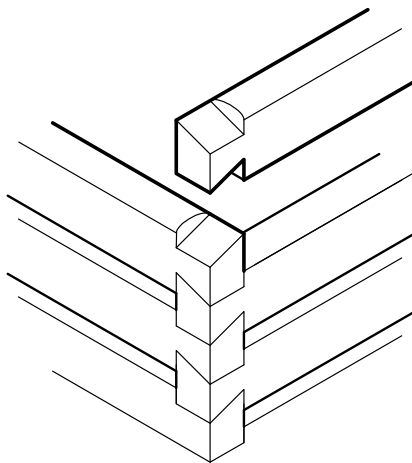
d. Diagram of half-dovetail corner timbering   e. Diagram of V-notch corner timbering
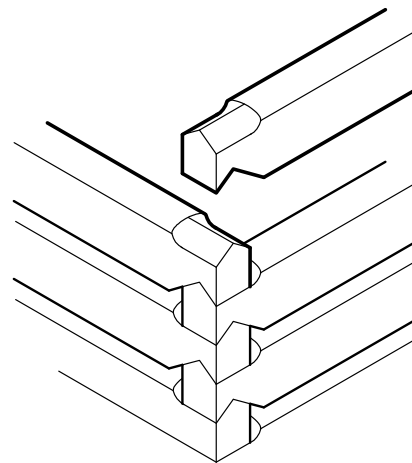
Figure 11 Log corner timbering (notching) techniques brought to Pennsylvania from central Europe include half dovetail notching used for some houses and barns in central Pennsylvania, such as the West Buffalo bank barn shown in figure 7. However V-notching, a North American development, is the predominant method used in Union County log buildings. The v-notch example shown in c) is from the Shively barn.

of the stacked timbers. Half dovetail notching from the West Buffalo Township bank barn shown in figure 7 is similar in workmanship to notching in Swiss barns (see figure 11a and b). V-notch corner timbering, a new world technique, is the most prevalent practice in central Pennsylvania. The logs in Pennsylvania barns were less extensively worked than in Swiss practice, hewn only on two faces rather than all four sides, and in general the traditional European building methods were pared down in Pennsylvania to be less labor intensive.   Following Swiss precedent, log Sweitzer barns have an asymmetrical gable profile from centering the roof ridge on the log mow and extending the front slope of the roof down over the projecting forebay, (figure 12a). This distinctive profile is a visual clue to log construction, which may otherwise be concealed by siding.

With the size of barns increasing and the clearing of forest land around farms, the construction of barns in Buffalo Valley shifted from log to frame. The transition occurred in the early 1800s, several decades before the end of log construction for houses. Buffalo Valley carpenters practiced systems of frame construction in parallel with log building, so structural framing coexists with log on bank barns, used for roof structure and intermediate support between log cribs. At about the same time that construction method changed to wood frame, Pennsylvania barn builders began to center the roof structure of bank barns over the full depth of the barn to produce a symmetrical gable profile, (figure 12b and c), creating a balanced form that became known as the 'Pennsylvania Barn'. [14]

a. Shoemaker barn, West Buffalo Twp   b. Mensch barn, Limestone Twp   c. Barber/Rippon barn, Limestone Twp

Figure 12 Changing treatment of the forebay of bank barns. The cantilevered forebay of early log barns produced an asymmetrical gable elevation, (a). Later frame bank barns re-center the ridge to create a symmetrical gable, in which the forebay cantilever is expressed (b) or concealed by end walls (c). The change of this treatment over time indicates the aesthetic desire for a completely symmetrical gable elevation.

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[14] Ensminger, <u>The Pennsylvania Barn, Its Origin, Evolution and Distribution in North America</u>, p67.

The framing of Pennsylvania barns consists of a sequence of 'bents', the configuration of posts, connecting girders and diagonal braces which form the support separating the structural bays on the barn's main floor. Bents (also called 'spans' by some builders) are a key detail to the study of frame barns because they are a localized aspect of material culture. Bent patterns vary widely throughout the Pennsylvania bank-barn region, but tend to be relatively consistent within a given community, where knowledge of how to plan and lay out a specific arrangement of framing members to form a strong bent was part of the barn carpenter's craft, passed down from master carpenter to apprentice. Once established within a community, a particular bent pattern may remain characteristic of barn construction over several generations.

Barn bent patterns in Buffalo Valley vary due to building size, available material and the specific barn carpenter's preferences, but there are several fundamental characteristics of barn frames in the valley which indicate the shared local building tradition, (see figures 14 and 15). The large diagonal down-brace at exterior posts and the diagonal support of the roof purlins are consistent for most of the 19th and early 20th century frame barns in the valley. This type of bent pattern is also found in the barns of western Berks and northern Lancaster Counties, important source areas for settlement in

a. Log and frame construction, Shoemaker barn   b. Early hewn frame, Kelly Twp.   c. Mill sawn frame, Buffalo Twp.

Figure 13 Development of barn frame construction in Buffalo Valley. a) four-bay barn which combines log crib hay mows with a frame bent between the two center bays. Note large opening in the log wall for loading hay into the mow, and overhead moveable beams for additional mow space. b) early four-bay frame barn with all hewn members. Note use of vertical studs at the exterior wall, indicating that the original barn cladding was split horizontal clapboards, later replaced with sawn vertical board siding. c) mid-19th century five-bay frame barn with mostly mill-sawn frame members. Note horizontal rails at the exterior wall for sawn vertical board siding. All three barns have the large diagonal down-brace typical of framing bents in Buffalo Valley.
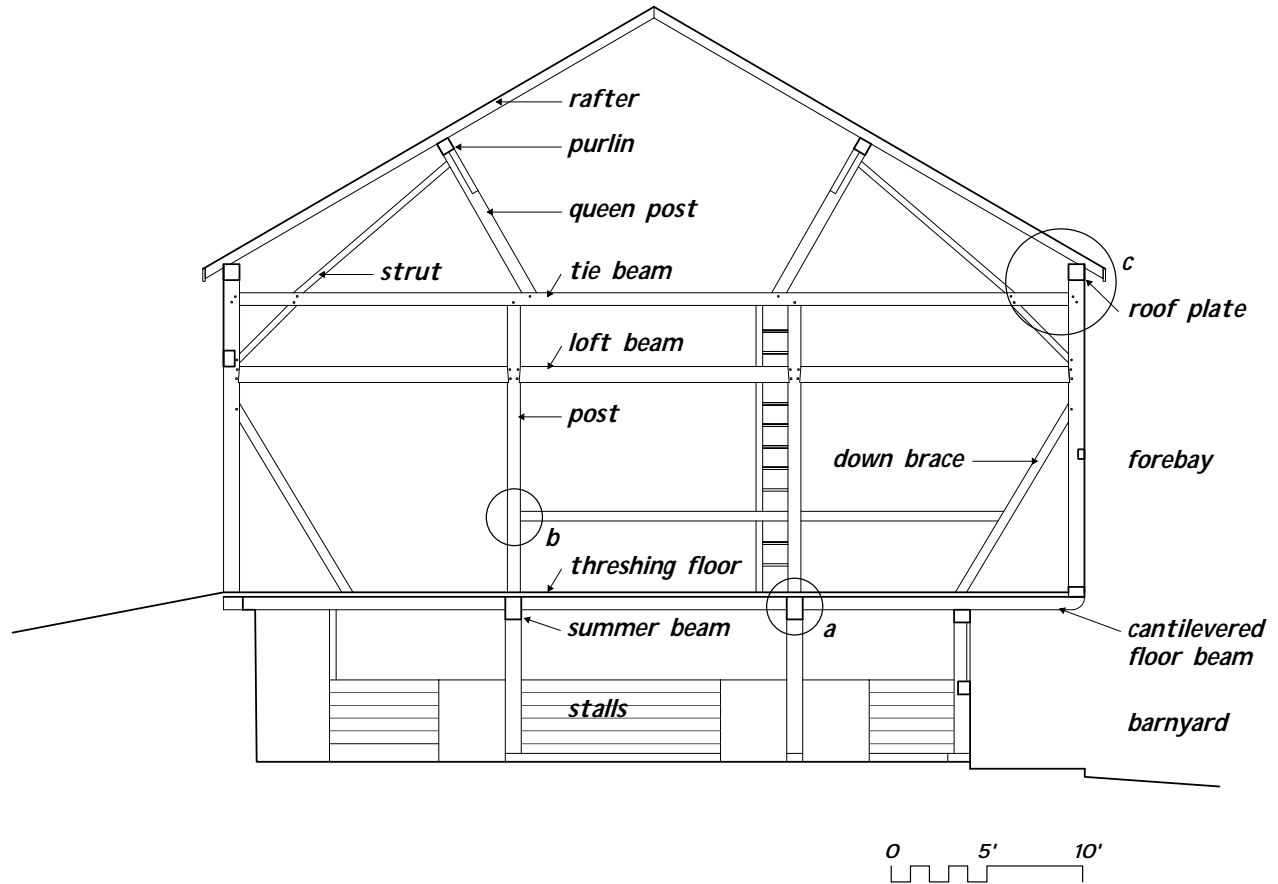
a. Scarf joint at summer beam   b. Mortise joint at post   c. Mortise joint at tie beam

Figure 14 Terminology of barn frame construction in Buffalo Valley. Diagram above is a cross section at the threshing floor of the Barber/Rippon barn in White Springs, Limestone Township, showing the framing bent configuration. Locations of framing joinery examples below are keyed on the diagram above. Scarf joint (a) is used to lock together end-to-end beams. Pinned mortise and tennon joint (b) with tennon removed on one side of post to show mortise pocket. Tension joint at tie beam (c) requires a long tennon and staggered trenails to resist the outward thrust of roof rafters.
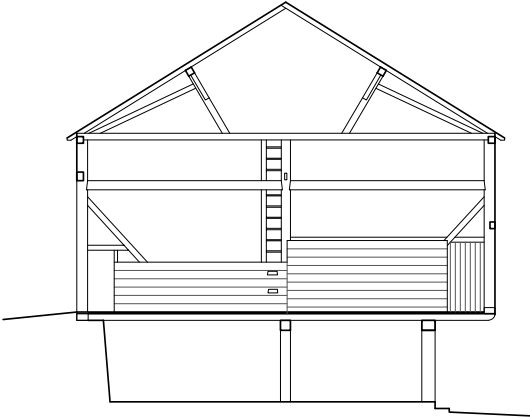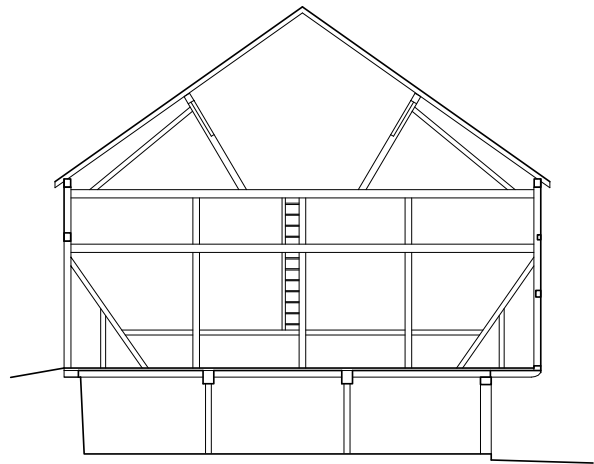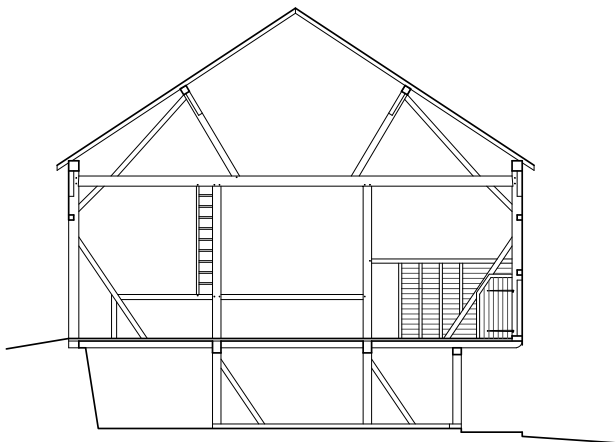
a. Four-bay barn, hewn frame, Kelly Twp.
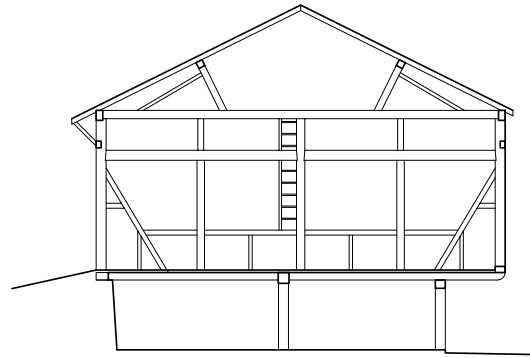
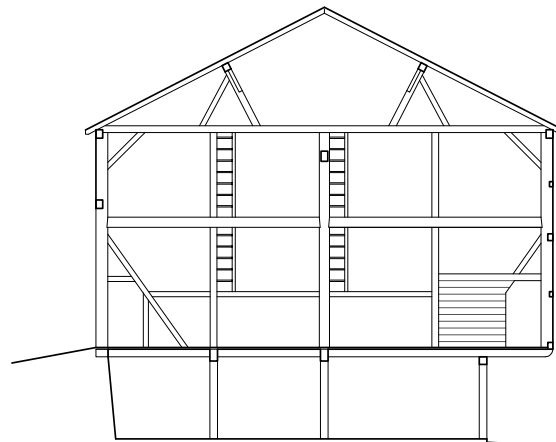b. Four-bay barn, sawn frame, Union Twp.
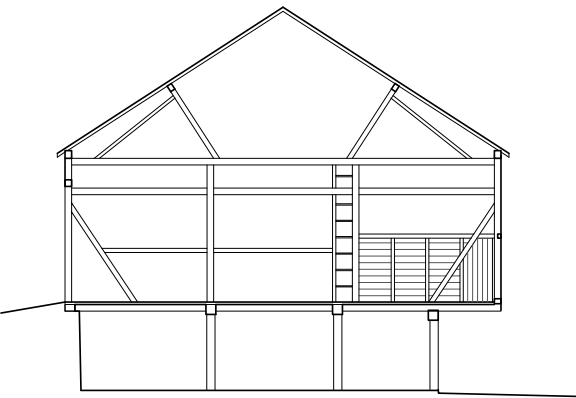
c. Five-bay barn, sawn frame, Hartley Twp.

d. Five-bay barn, sawn frame, Buffalo Twp.

e. Five-bay barn, sawn frame, Buffalo Twp.

f. Five-bay barn, sawn frame, Kelly Twp.

Figure 15 Barn framing patterns from 19th and early 20th centuries.   In the course of a single day barn raising, precut posts, beams and braces were assembled into cross-section frame 'bents' on the barn floor, tilted upright and locked into position by additional braces and longitudinal framing. While the bent patterns vary by size and builder preference, common features tie them to the Buffalo Valley barn building tradition.

Buffalo Valley, and is similar to Barn bents in Brush Valley to the west. Figure 15 illustrates both the range of variation and the shared characteristics of barn bents throughout Union county.

Nineteenth century barn builders used oak and chestnut for posts, braces and main beams, and white pine for the long tie beams across the top of the framing bent that countered the outward thrust of the roof rafters. Pegs, or 'trenails' used to lock mortise and tennon joints together were hickory or oak. The main level floor structure with cantilevered beams that supported the forebay and thick plank flooring for the massive loads of harvested crops, wagons and equipment were oak. Barn siding was usually white pine or hemlock. While the 1796 assessment mentions a thatched-roof barn, roofs were typically covered with split hemlock shingles through the late 19th century, replaced with tin or galvanized steel roofing in the 20th century.

Barn foundations were built of sandstone or limestone masonry, depending upon the native stone in the vicinity of the farm, replaced by concrete and concrete block in the early 20th century. A few 19th-century bank barns are constructed with stone masonry gable end walls (see figure 10), but these are rare exceptions in Buffalo Valley, entailing great expense and time to construct. Apart from the material and thickness of their end walls, these stone barns conform to the same plan layout as similarly sized frame bank barns, and the interior structure between the stone end walls is wood frame.

Building a Barn

The process of building a barn took place in two phases. The first stage was a period of weeks or months when the farm owner retained a crew of masons to prepare foundations and a barn carpenter to select, haul and cut the wood structural components to length. The carpenter measured and cut the precisely sawn corner notches for horizontal log construction, and the mortise and tennon joints for frames. Frame bent assemblies were test-fitted on the ground without installing the pegs during this stage to ensure a properly snug fit.

The second stage was a community event, the barn-raising, for which dozens of neighbors and relatives assembled to erect the structure and roof framing in a single day, under the supervision of the barn carpenter. Two entries in the journal of Flavel Roan from 1809 record the stages of this activity for a log barn in Buffalo Valley:

17 May   Jimmy Thompson building a barn on the Haffer place, for Clingan.

7 June   Raising at Hafer's; sixty-eight feet by thirty feet wide, forty-two rounds high. There were seventy people there. Finished before night and then had a sumptuous entertainment.[15]

This manner of working persisted through the nineteenth century, spanning the transition from horizontal log to timber frame construction. A record of barn construction at mid-century is found in the Diary of Conrad Sheckler, a surveyor and justice of the peace who owned a farm north of Mifflinburg. He notes helping to lay the foundations for three barns and, in the summer and fall of 1857, building a barn on his farm:

Monday,	May 25	to McCalls white deer creek about lumber
Saturday,	June 6	tore down stable
Thursday,	Aug 20	began getting out timber for barn
Thursday,	Sept 17	raised barn
Friday,	Sept 25	to McCalls for boards
Monday,	Oct 5	began boarding up barn
Monday,	Oct 12 & 19	roofed [16]

One of the major reasons that Buffalo Valley farmers developed and retained a strong shared barn-building tradition over several generations is the interaction between individual families and the community played out in the barn raising. Barn raisings required coordinated efforts of scores of people executing simultaneous and complex operations to assemble and safely erect the heavy frames. Raisings perpetuated relationships of mutual dependency among members of the community that were essential in the early years of settlement, and remained meaningful in later, more prosperous times. Radical innovation in the construction of barns, in this context, was not only risky, but eroded an important symbol of individual and community identity.   The voluntary labor of so many neighbors--men and boys to raise the frame; women and children to prepare food

[15] John Blair Linn, Annals of Buffalo Valley, Lane Hart, printer, 1877, p381. The 'rounds' refer to the stacked timbers of horizontal log construction.
[16] "Diary of Conrad Sheckler", http://scheckler.bouwman.com/Diary/Index

for the communal meals—enabled the assembly of huge barn frames in astonishingly short amount of time. Barn raisings within Amish and Mennonite communities today continue this once widespread social pattern, though the materials and carpentry techniques used for modern barn construction have departed widely from old traditional practices.

      Traditional carpenters mostly worked without measured plans or formal structural calculations, but with a remarkable grasp of construction process acquired through
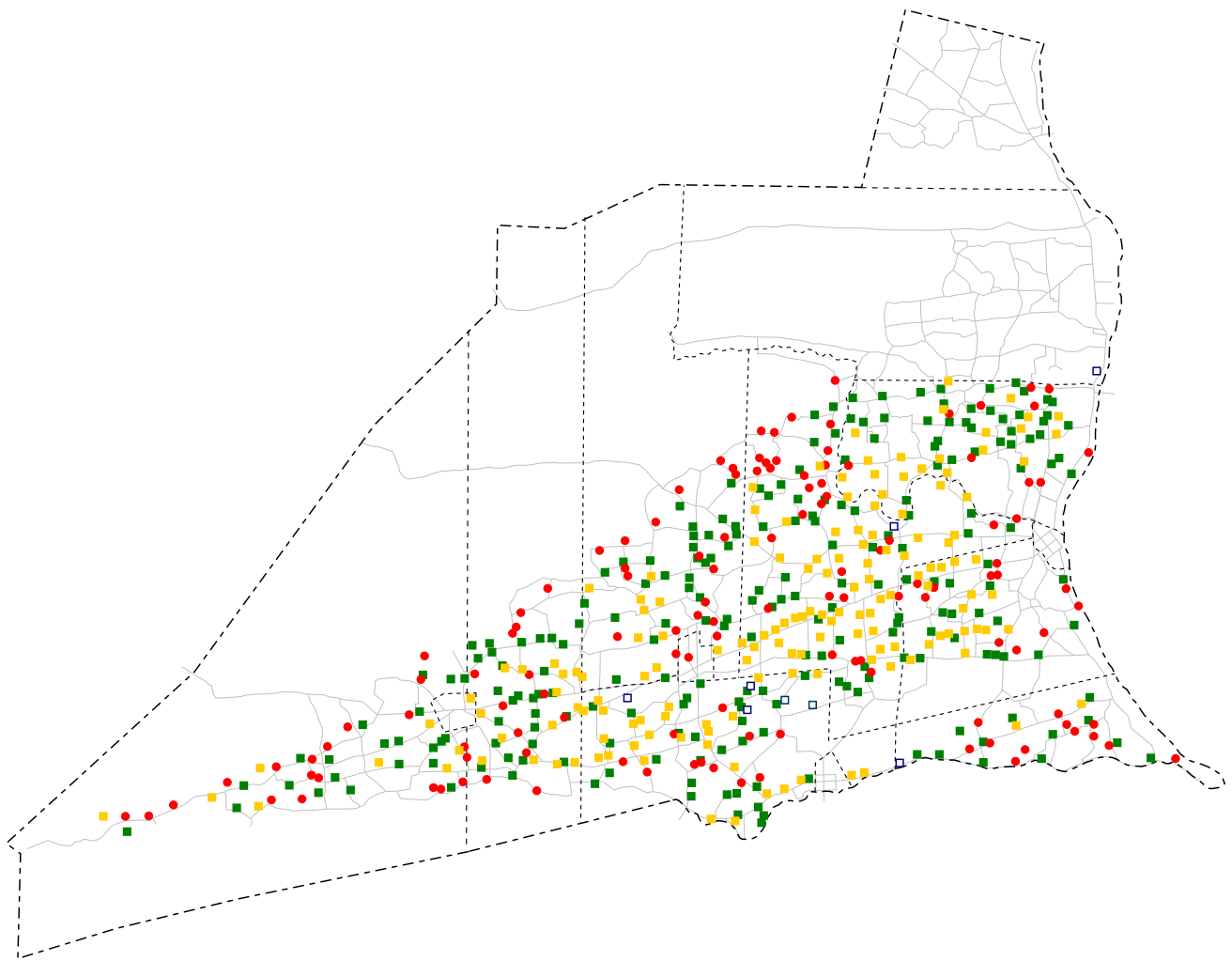

Figure 16 Map of bank barns in Buffalo Valley based on survey of surviving pre-20th century rural buildings. Red dots indicate three-bay barns; green squares indicate four-bay barns; yellow squares indicate five-bay barns. Open blue squares indicate stone end wall barns. While there are exceptions, a clear distribution pattern is evident, with the largest five-bay barns concentrated on prosperous mid-valley farms on the most fertile soil, and notably along the Lewisburg to Mifflinburg turnpike. Small three-bay bank barns are more prevalent at the edges of the valley. Four-bay barns occupy farmland between these two extremes.

(Most of the survey was conducted in the mid-1980s, so some structures have since been demolished. Survey data for White Deer and Gregg Townships is incomplete and not included on the map).

apprenticeship and long experience. Carpenters who possessed the skill and command necessary to plan and fabricate the structural components and then direct a successful barn raising were vital resources for the community, master builders who refined construction details and assembly processes into an efficient and elegant art form. A few of these master barn carpenters are known by name, such as Jacob Strickler of West Buffalo Township, who built barns in the vicinity of Mifflinburg identifiable by their distinctive trim. Most builders are no longer remembered, but their handiwork endures.

Hundreds of bank barns were raised in Union County during the 19th and early 20th centuries, over 600 of which still remain, although their numbers have diminished significantly in the last 20 years. Mapping the locations of the most prevalent three-bay, four-bay and five-bay plan types shows the economic relationship between barn size and fertile, mid-valley farm land, (figure 16).   While hardly surprising, the correlation is nonetheless striking.   The concentration of stone end wall barns (blue outline squares on the map) in Limestone Township is intriguing, and worth further study.

The second half of the 19th Century was the golden age of barn decoration in Pennsylvania. During that period the impulse to decorate barns was widespread throughout the state, but took different forms in different areas. 'Hex signs' were painted on Lebanon Valley barns, patterned brickwork enlivened the gables of York County barns, wood lattice fretwork stars were applied to barns in the Juniata Valley, and fancy ventilator trim to those in Buffalo Valley.[17]

Barn decoration served several functions. For the farmer, it enhanced the barn as a status symbol. Occasionally not just the barn alone, but entire suites of outbuildings, sheds and stables were decorated in the same style. The comprehensively planned estates of progressive farmers illustrated in county atlases and farmer's magazines published in the latter half of the century depict a mixture of folk and popular building styles unified by stylish trim. For the barn carpenter, distinctive decoration could function as a trademark.

Louvered ventilators on Buffalo Valley barns serve both functional and aesthetic ends. The construction of large, tightly sheathed frame barns required louvered openings to ventilate moisture from the large volume of drying hay and grain crops. When first introduced, the ventilated openings were treated like windows in size, proportions and

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[17] Various barn decorating genres are described in Alfred Shoemaker, editor, The Pennsylvania Barn, Kutztown (Pennsylvania Folklife Society) 1959.

trim. There is a similarity between the fenestration of mid-century grain barns such as the Maize barn and the windows of contemporary flour mills, as if to signify participation of the farm in the larger economic structure of commerce. After the 1870s barn ventilators evolved into tall, narrow affairs decorated with carpenter gothic trim. Barn builders developed their own trim signatures for the heads of ventilators, using simple motifs laid out with compass and set-square, and this practice of decorated barn trim flourished in Union and Northumberland Counties.
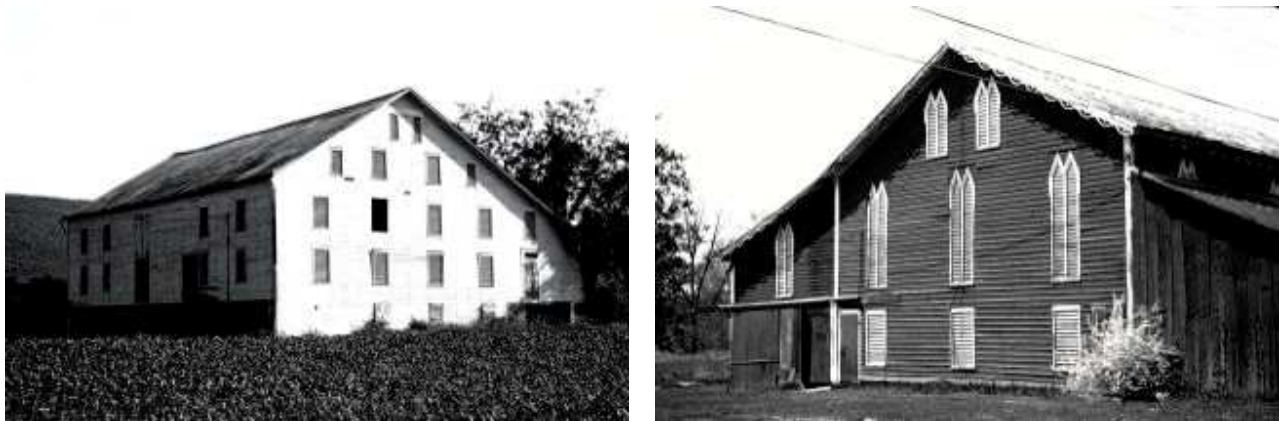

Figure 17 Louvers were introduced to tightly sheathed barns in the mid-19th century. Initially they mimicked window proportions and fenestration patterns, but by the 1870s they became the subject of elaborate 'Carpenter Gothic' decorative treatment. Barn builders developed distinct signature styles to mark their work.

There is something poignant about the decorated louvers of late 19th century Buffalo Valley barns. Underlying explanations of a barn builder's personal style or a barn owner's proud display, barn decoration is fundamentally a process of communication through the manipulation of symbols. Theories of change in the decorative style of artifacts suggest that the elaboration of decorations acts out a symbolic response to conditions over which the maker has no more direct means of control.[18] The decoration of barns flourished precisely at the time when economic depression and inter-regional competition began to threaten farm communities and the status of farmers. It is possible that Pennsylvania farmers responded to the stress of economic uncertainty by reinforcing the visual symbol of the farm as an independent enterprise. Even as they shifted strategies in response to competition and outside market forces, farmers created visual statements of stability, prosperity and control.

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[18] Peter Wells, "Material Symbols and the Interpretation of Cultural Change", Oxford Journal of Archeology, vol 4, number 1 (1985), pp 9-16.

The Waning Tradition

The bank barn remained the predominant barn type constructed in Buffalo Valley well into the 20th Century, accounting for hundreds of structures in Union County that span a period of sweeping changes in farming practice. Horse powered mechanization of farms around the time of the Civil War increased productivity significantly, yielding greater harvests to fill expanded barns. Improved transportation encouraged commercial agriculture, but it also brought Buffalo Valley farmers into direct competition with farmers in other states, altering their economic situation profoundly. By 1870, the grain belt had leapfrogged over the Alleghenies to Ohio and the mid-West. Increasingly enmeshed in the market economy and unable to compete profitably with large mechanized grain farms in the western states, farmers in central Pennsylvania were forced to adjust or even abandon traditional farming strategies. In the second half of the 19th Century, "general farming" replaced grain farming as the preferred strategy. Corn and oats joined wheat as major field crops, consumed primarily on the farm by expanding herds of livestock. The acreage devoted to hay increased substantially. Pork and beef production grew at mid-century, to be gradually replaced by dairy and poultry as the center of meat raising also moved west.[19] Changing practices from grain to 'general farming' in which income came from no single source, later to stock and, by the mid-20th Century, to dairy farming produced a sequence of additions, alterations and renovations to Buffalo Valley barns but did not result in a fundamental departure from use of the bank barn type until the 1940s. Horsepower and implement sheds, hay sheds, silos, milking parlors and covered barn yards each in turn were added to bank barns. Like the additions and alterations to the barns themselves, the changing farm strategies were cumulative and additive, always searching for continuity with previous experience.

The decline of traditional and shared barn building practice in Buffalo Valley was gradual. A loosening of community bonds restricting the inventiveness of individual farmers is evident when one looks at the construction of hay-shed additions to barns, especially later additions raised at the turn of the century--large structures which in some cases more than double the storage capacity of the original barn. The added hay sheds

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[19] "Historical Agricultural Resources of Pennsylvania 1700-1960", PHMC. Inter-regional competition and the adoption of commercial farming strategies is discussed in Danhof, Change in Agriculture.

often take the form of a gable or gambrel roofed 'L' or 'T' addition of two or three bays extending from the barnyard end of the threshing floor, but this outward similarity masks great diversity of individual solutions to the problems of construction. The bents of hay sheds range from improvised affairs to sturdy and well-planned frames, but they do not converge on a common technique to compare with the consensus suggested by barn bents. The construction of hay sheds and other later modifications to barns reflect individual responses to economic change, and individual decisions to set aside 'old-fashioned' traditional practices in favor of market-oriented agriculture and progressive farm management.

Ties to the past linger in the memories of families which have worked the same farm over multiple life-spans, but the old gives way to the new in every generation. The end of local vernacular barn building traditions throughout Pennsylvania in the 20th century was gradual, but cumulative and irrevocable. In many parts of the state, decline of family farming in general and the encroachment of suburban or exurban development are rapidly erasing the evidence of local barn traditions. This isn't the case in Union County which is fortunate to retain thriving farms and a rural agricultural landscape in which hundreds of old barns survive and continue to be used, adapted and preserved.

Figure 18 Covered barn yards and expanded hay sheds adapted bank barns to beef and dairy farming with greatly enlarged herds. They also constitute the final era of barn building as a folk tradition, as modern innovations and mass-market consumer culture increasingly replaced local practices and old time ways.

⚒ **ACCOUNTS** ⚒