

# The Barn Door



## Re-Raising the Star Barn

It was in the 1990s that I first happened upon the 1872 Star Barn while visiting the nearby Harrisburg, PA airport. This iconic Gothic Revival-styled barn complex was situated adjacent to Interstate 283 and below the elevated road on a four-acre parcel surrounded by suburbia. The huge 106' bank barn with a stone wall up to the threshing floor level, multiple gables with large star-shaped vents and an immense octagonal spired cupola was in decline. Its surrounding outbuildings (a pig barn, chicken coop, and carriage house) with the same Gothic Revival trimmings were in worse shape. Designed and constructed by master carpenter, Daniel Reichert for John Motter's horse and mule farming operation, the complex was listed in the National Register of Historic Places in 2000. Several preservationist groups invested considerable time, energy, and money into finding an owner willing to rehabilitate the barn and its outbuildings in place in the 1990s, yet the stars did not align as was hoped. I monitored its decline as yet another owner failed until the Star was purchased by local entrepreneur David Abel who had a solid track record of saving great Pennsylvania barns. He planned to reduce the Star to the lumber and stones from which it had been created and re-raise the structure at his Iron Stone Ranch at nearby Elizabethtown.

Rick Collins of Trillium Dell Timber Works, Knoxville, Illinois was awarded the task of a careful deconstruction and accurate reconstruction. Deconstruction occurred in 2016 and all the timber was carefully examined for soundness.

Ninety percent of the re-raised structure is original and most of the balance is material salvaged from other period barns. All pieces were numbered from a corner of the barn. Even the 40' rafters were numbered to be placed in their exact previous positions. A hand raising of the six heavy bents was scheduled for July 2nd, 3rd and 4th, 2017. My wife Willie and I arrived on the 2nd to find the assembled bents on the threshing floor deck. Standing were five utility poles each supported by guy ropes and with pulley blocks secured to the top. These were the gin poles for raising bent number 3.

Colonel Greg Mullen, recently retired from Virginia Military Institute and his namesake son were in charge of the rigging. Five heavy ropes ran through the tackle on each gin pole to evenly spaced locations on the 60' plus bents. In the other direction the ropes ran down through five sheave blocks on the deck and then laterally to five rows of humans who would supply the muscle. Each row had its captain in charge of a mixed male/ female, adult/ youth crew of 10-12 individuals whose pull was magnified by a mechanical advantage of 5x by the block and tackle.

*Re-Raising the Star Barn... (Continued on Page 3)*



*Reuniting the cupola and historic framing, July 2017, Photo Credit: Charles Leik.*

# NBA Update and News for 2018: Annual Meeting Planned, for October 24-26, with the PTN in Frederick, MD!

We sincerely apologize for the time that has gone by since our last newsletter and know that an update on the state of affairs at the NBA is long overdue. To make a long story short, here is 2017 in a nutshell: the all-volunteer board of directors continued to communicate with state organizations, attend barn preservation conferences, and write letters of support to historic barns across the country in need of a good friend. In November, the board met in a barn at the Kellogg's Fallingwater property outside Uniontown, Pennsylvania for our annual meeting and heard from several folks hard at work documenting Pennsylvania's great historic barns.

But on to the good stuff! This fall the NBA will once again partner with the Preservation Trades Network (PTN) for their 2018 International Preservation Trades Workshop (IPTW) to be held at the Historic Preservation Training Center in Frederick, Maryland. We are hoping to line up a couple of historic barns to tour around in the area and will also have our Annual Meeting at that time. As we discovered at ITPW 2016, many in attendance love to repair historic barns and are very knowledgeable about the construction techniques used in various regions of the country to create them. We hope you can join us! For more info, visit: [ptn.org/iptw-2018](http://ptn.org/iptw-2018)

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## Board Member Spotlight: Chuck Bultman, architect (and NBA President!)



Chuck Bultman is the founding principal at Charles Bultman architect (CBa). CBa is an Ann Arbor, Michigan based practice that focuses on high-end residential architecture, as well as small-scale, careful commercial projects. But the firm also has an unusual specialty. Along with designing 'normal' 21st century buildings, CBa's practice includes adapting old, timber framed, barns into new buildings, with new uses.

In all cases, the barns CBa uses are barns that are no longer wanted where they are, and therefore are destined to only one future... to fall down... unless they are repurposed. And in all cases the process is so respectful of the existing barn, its current owner, and its future potential that everyone sees the new use as a win-win for the barn. The story and the process is documented and celebrated.

Over the last twenty years, Chuck Bultman's practice has worked with more than forty antique barns; rehabilitating and adapting them for new uses, so they will be here 100 years from now... or more. Many of these barns have been converted to houses; but others are offices, restaurants, and artist studios. A few even are still barns. His barn projects can be found as far west as Idaho and Arizona, and as far east as Virginia and Vermont.

Chuck was recently elected president of the National Barn Alliance and serves on the technical advisory committee for the Michigan Barn Preservation Network. He is also active with the Timber Framers Guild, the Preservation Trades Network, the Friends of Ohio Barns and the Indiana Barn Foundation.

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*Re-Raising the Star Barn (Continued from Front Page)*

There was a real risk of enthusiastic “pullers” taking the bent past vertical to disaster and so another team was equipped with ropes and tackle to stabilize the bent at 90 degrees. This first bent had to be well secured at exact vertical as it would take the place of the five gin poles on lifting bent 6. Once bent 6 was secured girts were inserted into mortises and pulled tight with come-alongs to form a rigid box for the remaining bents.

Safety measures were textbook perfect. Participants were encouraged to halt the raising if they saw something amiss or a developing problem. The bent is at its weakest as it goes from horizontal on the deck to vertical and it’s important that the tautness of each rope is uniform during the lift. Occasionally a row was told to hold while another equalized the tension. Colonel Mullen told us the first inch is the hardest and when you get to 45 degrees the pull is easier and maybe the riskiest at near vertical. We raised bents 3, 4 and 5 on July 2nd and bents 6, 2 and 1 in that order following day. At least two hours was required to re-rig the tackle between raising and after bent 1 was up the boxes of rope, tackle and the Mullens disappeared to Virginia. A safe raising well planned and managed!



*Image of Original Frame on New Site and Foundation with Relocated/ Rehabbed Outbuilding at Right. Photo: C. Leik.*

The Star Barn has a canted purlin roof system and the first of these was also installed on July 3. A crowd of perhaps two thousand appeared on the 4th of July to witness the dramatic raising of the Gothic steeple by a massive hydraulic crane. This was completed in the late afternoon as a storm threatened with several timber framers riding a hydraulic basket to secure the mast. At 9 p.m. just before the fireworks, the framers dramatically rode the basket again against a night sky to install a fleur de lis and weathervane to the steeple’s pinnacle. Of course, much remained to be done by Trillium Dell in the following weeks but it was a great end of the Fourth of July holiday and a great beginning for the Star!

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## Recording Historic Barns in Shenandoah County, VA

In the fall of 2016, the NBA toured several Shenandoah County barns as part of our annual meeting at the PTN conference in Berryville, Virginia. Since that time, local historian, John Adamson, has been working to bring attention to historic barns in the county, some of which date as far back as the late 1700s! Rallying behind him are some great local historians, artists, and even Preservation Virginia – the statewide nonprofit preservation organization – who just named “barns of the Shenandoah Valley” to their 2018 Most Endangered List! Further details are provided in an excerpt from Mr. Adamson’s description of the project below:

“The Shenandoah County Historical Society [SCHS] is conducting a survey of traditional barns. The goal of this effort is to create a record of historic barns and raise awareness of the threats to their future. This effort is supported by the Shenandoah County Chapter of the Farm Bureau, the Shenandoah County Director of Tourism and Economic Development, the Town of Strasburg, the Strasburg Museum, the Fort Valley Museum, the Woodstock Museum, the Mt. Jackson Museum, the Shenandoah Valley Cultural Heritage Museum, the Edinburg Heritage Foundation, Hupps Hill Civil War Park & Museum, the Strasburg Heritage Association, the Shenandoah Germanic Heritage Museum and by many private citizens. Local artist, Sally Veach, is donating a portion of her art sales to the Historical Society’s historic barn program. Initial funding needs are limited to modest publication and media expense, but an effort for major fundraising is being discussed to support barn owners with maintenance. This work is in its infancy, but its participants are committed to raising public awareness of the problem and help mobilize the community to action!” Our thanks to John, the SCHS, & all others working to save those great American barns! For more info: [www.schs1795.com](http://www.schs1795.com).



## Dating Barns in Holland Township, New Jersey with Dendrochronology (Part 3)

*By Carla Cielo, Architectural Historian, Historic Preservation Consultant, Designer. Parts I & II of this dendrochronology study can be found on our website at The Barn Journal*

The Historic Preservation Commission of Holland Township, New Jersey, hired ‘Oxford Tree Ring Dating’ to date nine barns with dendrochronology. This study has been funded, in part, with grants provided by the New Jersey Historical Commission. It was hoped that a study of this kind would answer questions related to ethnic settlement patterns.

The first barn dated with dendrochronology in Holland Township was the Hammerstone Barn – a ground-level, three bay, heavy-timbered, swing beam barn that is located in the hilly section of the township about 8 miles inland from the Delaware River. This preliminary dendrochronology study was completed in 2007 by a colleague who provides dendrochronological services as a side venture. Only 3 samples were taken from the floor structure in a crawlspace: one from a girder that supports the joists at midspan in the crawl space of the west bay and 2 from floor joists. No samples were taken from the main barn frame. Samples were sent to a lab for analysis. The dates were non-conclusive: sample #1 dated 1787, sample #2 gave no date, and sample #3 dated 1785. The possibility of a 1787 construction date was assumed.

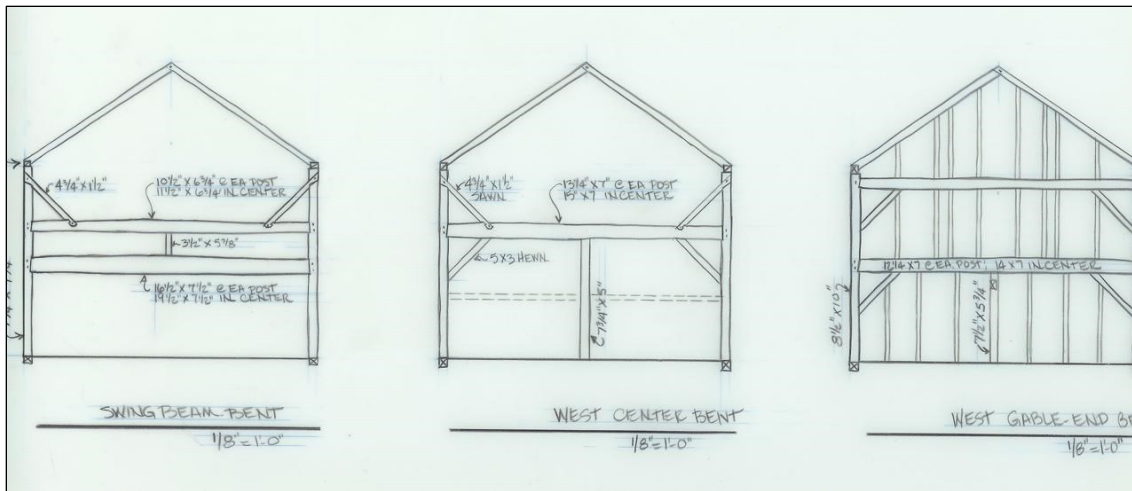
After dating six other ground-level, swing beam barns that ranged in date from 1794 to 1812, the 1787 date was questioned. The character of the framing of the Hammerstone Barn looks far more advanced (younger) in its construction methodology than barns that dated to the 1790s. For example, the interior bents of the 1794 James Salter Barn are framed with just two unconnected cambered tie-beams. Whereas in the Hammerstone Barn, struts and passing braces are incorporated into the swing beam bent to join the upper and lower tie beams. This is characteristic of the ground barns that dated after 1803 in Holland Township. It was therefore decided to date the barn again using a professional dendrochronologist who operates his own in-house lab. The findings were interesting to say the least.



*Top: View of Hammerstone Barn in Holland Township, NJ  
Bottom: Interior View of Swing Beam and Other Framing Members,  
Hammerstone Barn. Photo Credit: C. Cielo.*

*Dating Barns in Holland Township, Part 3 (continued on p. 5)*

Dating Barns in Holland Township, Part 3 (continued from p. 4)



*Sketch Plans of Hammerstone Barn Framing: Swing Beam Bent (Left), West Center Bent (Middle), West Gable End Bent (Right). Drawing by C. Cielo.*

This time 7 samples were taken in the barn: 3 from the upper barn frame and 4 from the floor joists (including one joist that had been sampled previously). Two samples revealed that the trees from which the timbers were cut were felled during the winter of 1803/04 suggesting that the barn was built in the spring of 1804. The five remaining samples unfortunately could not be dated. The 1804 date, however, is “right on” when compared to the construction details of several other dated barns.

To add further interest, the data was run again on the three samples that were taken in 2007. One of them did indeed date to 1787. Another matched the chronology of the sample that dated 1787 up to 1758 with a “t-value” of over 11. The “t-value” provides an indication of the quality of the match against a reference chronology. A t-value greater than 5 indicates a regional match; above 10 suggests that the samples came from the same tree. In this case, the “t-value” over 11 indicates that two joists were cut from the same tree and that the sapwood was probably lost from the latter sample. Does this indicate that at least some of the joists were reused from a 1787 structure? Or does it indicate that the sapwood was lost from both samples and that both would date to 1804 if the sapwood remained? Since the core drills appear to have been lost, we likely will never know. It is surely tempting to fantasize a former 1787 log structure being reused as floor joists! But if this was the case, wouldn’t a 1787 date have been re-identified by the second dendrological study?

In conclusion, dendrochronology is a highly valuable tool, but it must be part of a comprehensive study which takes into account a variety of methods to date a building (saw cut, nails, framing methodology etc.). Propagation of a false date can be detrimental to future barn historians.



*Detail of Bracing Joints at Swing Beam (left) and of Sample Extraction (below). Photo Credit: C. Cielo.*





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## 2017 Ag Census: Data Available in Early 2019

“The U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) is wrapping up data collection for the 2017 Census of Agriculture. To stay on track for data release in February 2019, the deadline for submitting the paper questionnaire was June 15, 2018. ‘The Census of Agriculture provides the only source of comprehensive agricultural data for every state and county in the nation,’ said USDA Secretary Sonny Perdue. ‘These data are used to make important local, state, and national decisions that will have a very real impact on farmers, ranchers, ag operations, and rural communities.’” For more information, visit [www.agcensus.usda.gov](http://www.agcensus.usda.gov).

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## BARN DETECTING IN ANN ARBOR, MICHIGAN

The story of America’s barns cannot be told with one barn. While the timber framing found inside might give you a clue as to the age of the barn, and the tools and techniques employed; most times there is more to the story. A bigger issue is how that barn compares to others. What is common for where you are, and what is not? That is why a barn’s story is always about the many.

The image below would not necessarily turn a head if it were taken in New England, or New Jersey, or Pennsylvania. But this is Southeast Michigan. And having been in hundreds of Midwest barns I can count on two hands how many times I have seen flared posts; and I still have fingers left to count with. This is all the reward any barn detective could ask for; to find something that is not common to the area in which it is located and then to try to understand why it is there. This particular pre-Civil War barn is a stunning 40 by 50 three-bay barn in central Washtenaw County, that happens to have been built by a barnwright that still understood the English tying joint that informs the configuration. This post is found at the top of the basement framing. The detail is part of a full-height basement, which is not uncommon in Michigan barns. But they typically have a bank. This barn however cannot be called a bank barn; there is no evidence it ever had one.



After six years of trying to find a home for this unwanted and unmaintained barn was dismantled, restored, and plans created to adapt it to become a house, on a farm about 10 miles away. In the coming months the work will begin, the investigations and discoveries will be ongoing, and the barn’s story will out. We will tell that story here. Until then!

*Image and text by  
Charles Bultman, NBA  
President, Ann Arbor, MI*

## NJ's Wilburtha English Barn *By Jeffrey L. Marshall, NBA Vice President*

Most of us are familiar with the expression, “good things come in small packages” although generally not in the context of historic barns. I recently had the occasion to visit a wonderful small ground barn located in Wilburtha, New Jersey. This gem of a stone barn, is unlike the more typical and celebrated two story bank barns for which the Mid-Atlantic states are justifiably celebrated. Most of this region’s are large barns and have a strong Pennsylvania German influence. However they were not generally the only, and certainly not the earliest barns built in this cultural landscape.

With a dominant English population in the early settlement period of the region, the English barn-building tradition was the most common form of barn found in most of the Delaware River Valley particularly for eighteenth century barns. Local farmers were building barns incorporating their English traditions.

The principal English barn brought to America was the threshing barn: three bays wide, one bay deep, with a central drive. This type of barn type employed hewn, heavy timbers and was designed for grain threshing and hay storage. Convention states that English settlers also imported their tradition in which separate agricultural products, processes, and animals were housed in separate barns or outbuildings.

There are, however, a small number of classic single-level English barns that still remain in the region. They are similar to New England or Yankee Barns, but the ones that remain are stone rather than wood frame construction. They generally incorporate animal stables in one or both of the side bays.



*An Introduction to the History & Construction of England's Barns* states, “At its most basic, the threshing barn is a large rectangular box with two doors opposite each other in the centre of the long side. One door is large enough to admit a wagon laden with sheaves of corn, and the opposite door allows the unladen wagon to exit.” “The barn is divided into bays by the trusses which support the roof. The most common barns were three bays with one bay either side of the central opening or “midstrey.”



In the late summer, the harvest of would be taken by wagon and stored in the bays of a threshing barn. During the autumn and winter, the sheaves would be placed on the “threshing floor” between the two doors and would be thrashed” or “threshed” with wooden flails to separate the grain from the straw. The open doors provided a through draft which carried away the chaff. The grain was held on the threshing floor by the “threshold,” a lowboard or a separate part of the door which was closed across the bottom of the doorway.”

[http://greatbarns.org.uk/barn\\_intro/barn\\_intro\\_01.html](http://greatbarns.org.uk/barn_intro/barn_intro_01.html)

*November 1947 photo showing frame addition on west gable end (top) and Front of barn (at bottom).*



This barn measures approximately 40' wide by 24' deep. It is three bays wide but the bays are not all the same width. The westernmost bay with the door on the south elevation is approximately 13' wide, the frame central bay is just over 11' wide and the easternmost bay is approximately 15' wide. Unlike some similar barns, there is no door on the south elevation of the eastern bay (obscured by a stone shed). The entrance to this bay is from the east gable end.



Currently the east gable is covered with wood siding. The amount of stone lying around the barn suggests that it was originally stone to the peak as is found on the west gable. The interior of the barn maintains its original three bay configuration.



*View of east gable end and shed. (top) and west gable end (right).*



*The foundation of the Cravenhurst barn is made of cut and dressed stones with arched entry to a central drive at the lower level. Photo credit: Indiana Landmarks. To learn more, visit: <https://www.indianalandmarks.org/endangered-property/cravenhurst-barn/>*

## Historic Barns Make State’s “Most Endangered” Lists!

As noted in the previous article on Shenandoah County’s historic barns survey, Preservation Virginia – the statewide non-profit preservation organization, has added the Barns of Shenandoah Valley to their Most Endangered Historic Places list of 2018!

Indiana Landmarks, the non-profit preservation organization for the Hoosier State has also named a barn to their 10 Most Endangered listing for 2018. The Cravenhurst Barn, located outside of Madison, Indiana, is a 1906 bank barn that is unique in the area. It was highlighted as one of Farm Journal Media’s Great American Barn series in 2016 and features an internal silo, collapsing now, and feeding chutes to main and lower levels from the grain storage floor above.



**Barns of McDonough County, Illinois**

*NBA Board Member, Bob Sherman knows these barns well and thought to grab a few images of them on his recent travels through the area and recount a brief history!*



**The King Barn (Left)**

Built in 1898. This is one of six "Cross-Gable" barns still standing in McDonough County. These Cross-Gable barns were mostly built by one builder, Newt Willis, who popularized this local style with its open hay loft and their huge ventilating cupolas.

**The Flack Barn (Right)**

This double valley Cross-Gable Barn was built in 1900 by Newt Willis. This farm has been in the same family for over 155 years. The great grandfather of the current owner lived on this farmstead. The exterior has recently had a complete restoration with its original color scheme to maintain its historical sense of time.



**The Kipling Barn (Left)**

Built circa 1920. Originally this barn was built as a general purpose barn for the farm. In 1944 it was converted to an egg laying house for hens with a third story added for greater egg production. The barn features an internal grain elevator. Currently the barn is no longer in egg production, but is used for family storage.



**The Redman Barn (Right)**

This "Cross- Gable Barn" was built by Newt Willis in 1895. This is the oldest of this barn type still standing in McDonough County and is listed as a historic landmark. One of the interesting features of these Cross-Gable Barns is the owners liked to use more than two paint colors to cover the exteriors.





*Barns of McDonough County, Illinois (cont'd)*

**The Penington Barn (Left)**

This Cross-Gable Barn was built by Newt Willis and Nick Breasaw circa 1900 - 1915. It has the familiar open hay loft like all of these barns. No doubt is McDonough County is the hearth area of these cross-gable barns. Note on this barn there is no ventilating cupola. It originally might have had one to vent the heat of the hay mow. It might have blown off or might have deteriorated and been removed during a reroofing job...

**The Everly Barn (Right)**

This Stick Style horse barn was built in 1882 by Newt Willis. It is listed on the National Register of Historic Places. The multi-color scheme is even included within the horse stalls of this barn. The fretwork and ornate trim make this a unique barn in Illinois.



(Editor's note: Two other barns, a corncrib, a carriage house, an outhouse, and a machinery shed also still stand from around the same time period as this barn, but the house has since been lost).

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