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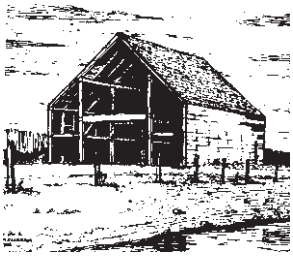

The Swing-Beam Barn in the New World Dutch Cultural Hearth

By Gregory D. Huber

Introduction

The New World Dutch (NWD) barn dominated the Mohawk and Schoharie River Valleys in New York State from the earliest European settlement times (1660s) to about 1810, or a period of about 150 years. While the number of these barns initially constructed previous to the Revolution was certainly in the thousands, none built before about 1730 appear to have survived. As it is, few barns built in the period from the second quarter of the eighteenth century to the end of the war have survived into the twenty-first century. This vast attrition, an entire story unto itself, was apparently due to a great extent to the Johnson and Brandt war raids. Several dozen barns of NWD type, built in the period between 1785 and 1810, have been identified in the region since the mid 1960s. The end of this period is important to understanding the reason for the demise of the classic three-aisle NWD barn and the proliferation of a new form, the swing-beam barn.

Swing-beam barns were built in two particular regions within the New World Dutch cultural hearth with greater frequency than in any other parts of that settlement area. The building of this often-overlooked barn form may have commenced at about the same time in each of these areas. The earliest remaining examples in the upper river valleys of eastern New York State may date from either the first or second decade of the nineteenth century. However, at least one archival source may indicate that the barn type may have been introduced as early as about 1780.[1] In Hunterdon County, west-central New Jersey, the use of swing-beams began at some point in the second half of the eighteenth century, judging from surviving examples. The forces that determined the appearance and use of the swing-beam type barn in the river valleys of New York State constitute a considerable focus of this article. Analogous New Jersey examples will also be discussed.

The Swing-Beam Barn: a Definition

A swing-beam barn may assume the form of either a one-level barn or a two-level banked structure. One of its principal structural elements is a transverse bent that borders a wagon bay, containing a swing-beam. Frequently of large size, a swing-beam stretches the full width of the barn, typically about seven feet or so above the floor level. The critical qualifier for a structural element to be identified as a swing-beam is the absence of any post or brace below the soffit of the beam. There are a few rare exceptions to this rule. It is interesting to note that, unlike other barn types such as the Pennsylvania fore-bay barn, the swing-beam is so distinctive and prominent a structural element that its name is used as the designator of the barn type. No other early North American barn type is normally identified in this manner. Other defining elements of the swing-beam barn type will be discussed below. For ease of presentation most of the discussion here is limited to one-level barns (Photo 1).

Photo 1. Interior view of bent showing a substantial swing-beam in a ground barn in Bethlehem Township, Warren County, New Jersey. The bent that flanks the wagon bay also has an upper tie beam and the side-wall post extension above the upper tie is quite long. (All photos by the author unless indicated otherwise).

Experimentation with barn forms was taking place throughout the areas settled by European-Americans at the beginning of the nineteenth century. Previous to that, the basic design of the classic or three-aisle New World Dutch barn thrived in rural farm economies of the NWD cultural hearth. After that date the swing-beam barn rapidly replaced it. Reasons for the emergence and later dominance of this barn type will be discussed below.

Although swing-beam barns intermix with NWD barns to varying degrees in the areas where they are found—especially in New York State—the broad area of the

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Swing-Beam Barn *(continued from page 1)*

Mohawk, Schoharie and upper Hudson valleys is the only region where both NWD barns and swing-beam barns are each well represented. It is interesting to note that the swing-beam barn was either infrequently or perhaps never used in Ulster County, New York prior to 1840.[2] In the past 35 years, more NWD barns—115—have been identified in that county than in any of the more than 30 counties where these barns are known to have been built. It is apparent that the cultural dynamics that fostered the construction and use of swing-beams in barns were less influential in Ulster County. Similarly, no swing-beam barns have been identified in Rockland County, at the southern end of New York, or in adjacent Bergen County in New Jersey, both extensively inhabited NWD areas.

Overview of Existing Literature

Although many hundreds or perhaps thousands of swing-beam barns have survived in the northeast and in parts of Pennsylvania, Delaware,[3] Ohio, Illinois,[4] and a few areas in Canada,[5] little critical scholarly work on this barn type has been completed and literature on the type is sparse. References to swing-beams can be found in some nineteenth century sources.[6] One is found in an 1874 book published in Canada by author Charles Edward Whitcombe, who notes that "granaries should not be built under the swing-beam of a barn surrounded by solid masses of grain, hay or straw."[7] Nothing else was said that referred to the beam and there are no illustrations in the book.

The first reference to swing-beam barns in modern-day literature that this author has found is in the 1953 book *The Golden Age of Homespun* by Jared Van Wagenen, Jr, who was born and raised in Lawyersville in Schoharie County. He includes an illustration of a partial view of a swing-beam with a tethered horse moving in an apparent circular motion. Van Wagenen states that "many of our old-time barns were framed with one or two giant "swing-beams"—timbers of unbelievable size, sometimes two feet or more square. These were designed to carry the big overhead mows without any center support, thus leaving a clear, unobstructed threshing floor."[8]

Eric Sloane did not discuss or depict the swing-beam barn type in either of his popular barn books *American Barns and Covered Bridges* (1954) or *An Age of Barns* (1966).[9] It is curious, however, that Sloane called anchorbeams in NWD barns "swingle beams." He did recognize the NWD, English and Pennsylvania German barn types however.

In their classic 1972 book *The Barn: a Vanishing Landmark in North America*, Eric Arthur and Dudley Witney included a few photos and four sketches of the "swing-beam bents" they found in some barns. They assigned the term "English barn" to this type of structure.[10] Henry Glassie included several barns that possessed swing-beams in his published work on Otsego County barns.[11] He did not, however, discuss the barn type in detail.

Richard Babcock discussed the barn type but he assigned erroneous dates of construction to the two barns that he worked on. He believed the Kniskern barn, located near Blenheim in Schoharie County, New York, to have been built in the early eighteenth century. It was much more likely erected circa 1820. A second barn that Babcock disassembled was what he called the "French barn." It had a swing-beam (and a rare king post) and was found by him near Hoosick in New York. Through a complicated explanation including an evocation of the legendary settlement of Norumbega, he came to the conclusion that the barn had been constructed in the mid 1500s![12] Its likely date of construction was in the late eighteenth century.

In his *Barns of the Genesee Country*, 1790-1915, Daniel Fink briefly discussed the swing-beam barn and its appearance in upstate New York west of the Mohawk River Valley.[13] He also presumed that the barn type had English precedents. Elric Endersby and Alex Greenwood in their well known book *Barn: The Art of a Working Building*, included a few illustrations of barns with swing-beams.[14] The swing-beam and its rarity in Pennsylvania barns was briefly discussed in the second edition of Robert Ensminger's book *The Pennsylvania Barn*, published in 2003.[15]

The first extensive North American barn field guide was published in 1995, *The Old Barn Book: A Field Guide to North American Barns & Other Farm Structures*, by Allen G. Noble and Richard K. Cleek.[16] It contains, remarkably enough, only a short two-sentence paragraph on the swing-beam barn. Swing-beam barns in New York and New Jersey have been discussed in at least five issues of the *Hudson Valley Vernacular Architecture Newsletter*.[17]

In none of these books or journals is the swing-beam barn type discussed at any length. In the elucidation of many of its construction details and search for an origin of the barn type we are at about the same point John Fitchen was at when he was first introduced to the NWD barn in September 1962. This is curious given the fact that the incidence of swing-beams in North American barns is considerably more prevalent than the use of H-frames with their distinctive anchorbeams in NWD barns.

Fitchen apparently did recognize the existence of swing-beam barns. In his book *The New World Dutch Barn*, he stated "here are to be found a considerable number of early barns (located in the Middleburgh, New York area), both those that followed the scheme of framing discussed in this study and those that immediately superseded them."[18] Although he did not use the term "swing-beam", he was undoubtedly referring to swing-beam barns. Additional references to this barn type were incorporated into the second edition of Fitchen's book, including a comparison between the dimensions of anchorbeams and swing-beams.[19]

Swing-Beam Barn as an American Invention

Although not frequently recognized as such, the swing-beam barn is most likely an American innovation. While there are other later barn types which can make the same claim, the swing-beam barn may be the only type that occupied late eighteenth century cultural landscapes in the northeast which did not have any European precedents.

Apparently the first observer who speculated that the swing-beam barn had a European origin was barn restoration contractor Richard Babcock. He made this assertion (in conversation) based upon the fact that he had seen a single sketch (or painting) of a barn in Germany that possessed a swing-beam. From this Babcock believed that the barn type was German in origin. But one barn (he appar-

Photo 2. The side-wall entry ground barn in Cranbury, Middlesex County, New Jersey. The swing-beam is located immediately to the right of the door.

ently had no other sources) does not constitute proof for the origin of this type. After Babcock, a few people have asserted (in discussions) that the swing-beam barn may possibly be of German origin, citing that the type first appeared in Germanic settlements in America. Certainly the barn type is located in areas that had a pronounced level of German immigration associated with them, including the Schoharie and Mohawk River Valleys and also west central New Jersey, where the barn type abounds. The use of the swing-beam may have originated with Palatine settlers in America but does not have a clear European source. More may be said about this topic but it is beyond the scope of this article.

Robert Ensminger consulted three German scholars with respect to the possibility of a Germanic European origin of the barn type. The first was Joern Wingender, a timber framer of twenty years from Germany, who indicated that he had not observed swing-beams in any barns in Germany. Ensminger also asked Swiss author and Research Director of Swiss Farmhouse Studies for the Swiss Folklore Society, Dr. Benno Ferrer, if he had ever occasioned upon swing-beams in a Swiss structure and his answer was no. Ensminger finally asked Dr. Dieter Pesch, Director of the Outdoor Museum of Kommern in the Eifel Upland in the Palatinate area of West Germany if he had ever seen a swing-beam in a structure in Germany and the answer was again no.[20] These three enquiries essentially put to rest the notion of any Germanic European connection to the swing-beam barn type. In addition, Ensminger asked the great English vernacular building scholar Ronald Brunskill if he had ever seen a swing-beam in an English barn. His answer was no. No Dutch scholar, to the best of my knowledge, has ever identified a swing-beam in a barn in the Netherlands.[21] At this point there would seem to be little evidence for a European origin of the swing-beam barn.

Earliest Examples of the Swing-Beam Barn

West central New Jersey seems to harbor the earliest remaining barns among the several areas where swing-beam barns have been found. It may also be the area with the greatest number of surviving swing-beam barns. The type is found in a wide area of New Jersey, especially in Hunterdon and Warren Counties but also to some degree in Mercer, Monmouth and Middlesex Counties. There are many hundreds of them dotting the landscape. They are seen in two principal forms: one-level barns and two-level bank barns. The two-level type is often of the Pennsylvania fore-bay style.

The earliest surviving swing-beam barns in New Jersey appear to date to about 1780. One excellent example from that period was the Burroughs barn in Hunterdon County, dismantled by the New Jersey Barn Company about 1995. They also recently relocated and restored a one-level barn with a swing-beam that has a carved date of 1741 on the reverse vertical side of the 1′-7½″ high swing-beam. Various construction features of this barn, located in Cranbury in Middlesex County, indicate that the date refers to a time about 50 years previous to the construction of the barn however (Photo 2). When the carving was done is not known. Probably the earliest dated example in the state is a stone masonry example of a one-level three-bay barn located on Route 519 in Warren County, which has the date "1798" carved into original plaster on an inner door jamb.

With the identification of several pre-1800 barns in the area it may be that west-central New Jersey was the location of the initial appearance of the swing-beam barn in North America. Except for a few scattered barns in southeast Pennsylvania, no other area where these barns have been identified seemingly has any structures that predate about 1800. There may be some exceptions to this apparent rule such as the 1790 Albany source mentioned above. The form that was almost undoubtedly first constructed was the one-level barn of three-bay construction. This makes sense inasmuch as long-held traditions assert that earlier barns were small structures. The one-level barn type, as opposed to the bank barn type, conforms to this idea. Bank barns of any form did not become common until after the end of the Revolutionary War. One-level barns were a common component of eighteenth century cultural landscapes, and there are three principal types. The first is the three-aisle Dutch-American barn; the second is the classic three-bay side entry English barn and the third is the Germanic one-level *grundscheier*, meaning "ground barn" in southeast Pennsylvania German dialect.

Question of Independent Appearance

The swing-beam barn may have appeared at more or less the same time in the northeast, independent of the barn forms which developed in other areas. These areas include the upper river valleys of eastern New York, west central New Jersey and in the Berks and Chester County areas of southeast Pennsylvania. The one-level barn with a swing-beam appears to have spread to surrounding areas

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Swing-Beam Barn *(continued from page 3)*

subsequent to its initial appearance in New York and New Jersey. The idea of incorporating a swing-beam into the structural system of a barn may have originated with builders themselves.

The following questions are offered to stimulate thinking about the possible dynamics behind the conceptual establishment and promulgation of the swing-beam barn: In what manner were barn construction ideas disseminated? Was the "swing around action of horses" accommodated only in barns with swing-beams, or did it take other forms which we have yet to discover or which have wholly disappeared? Consider the possibility that, previous to 1790, some earlier type of barn resembled or functioned somewhat as the swing-beam barn type did. Also consider the influence of various publications such as newspapers and inexpensive books, and of patents, all of which promoted changes to agricultural practices in the first decades of the nineteenth century. The dissemination of the swing-beam barn type may have been, in part, a result of these. And finally, to what degree was relocation of farmers and builders to new areas responsible for the dissemination of barn forms?

Enter the Industrial Revolution

The effects of the Industrial Revolution reverberated throughout much of the northeast beginning in the second decade of the nineteenth century. By that time the swing-beam barn type was already established in the upper river valleys of New York State. In the river valleys its chief benefit was in the form of greater efficiency, when compared to the NWD barn. Other reasons, discussed below, explain why the swing-beam barn was better suited to the new industrial age.

New Transportation Means as a Profound Change

In the study of how market economies change and how they affect the appearance and building of barn construction styles the topic of transportation is of paramount importance. This is critical to understanding the emergence and proliferation of the swing-beam barn, at least in the upper river valleys of New York.

Between 1790 and 1820 more than 275 turnpike companies built in excess of 4,000 miles of roads in New York.[22] This dramatically increased the ability of merchants and farmers to transport their products from areas that were previously inaccessible. Fertile farmlands of western New York and beyond were pulled into direct market competition with farms in the Hudson Valley and the upper river valleys of the state. Both the Erie Canal (which opened in October 1825) and the Delaware and Hudson Canal (in October 1828) introduced rich grain producing areas of the state to New York City markets.

Many river valley farmers continued to cultivate their crops as they had for decades. Pressures to improve agricultural practices were initially minimal. There was little crop rotation and manure added to fields was not done regularly. As a result of all this, exhaustion of farm soil was experienced to a great extent. Yields fell. In contrast, yields in western New York counties compared favorably and had great competitive advantages in New York City markets.

The transportation revolution encouraged many valley farmers to alter the way they produced and marketed their goods. Many farmers invested in more modernized agricultural equipment and the land cultivated by individual farmers increased. More and more farmers resorted to single crop production and they sold much of their produce in commercial markets. Greater amounts of produce were being sold to New York City. Competition increased.

Barn architecture needed to respond to these changes. New ways of constructing barns were conceived, likely originating in ideas proposed by both farmers and builders. New barn-building technologies were extensively utilized after about 1820 in New England and Pennsylvania and also in New York, New Jersey and beyond.

The classic three-aisle NWD barn proved adequate in most cases for more than 150 years in the upper river valleys of New York up until circa 1810. But as the second decade of the nineteenth century approached, three-aisle barns were increasingly unable to accommodate functions associated with new modes of farming. In the second and third decades of the century local systems of farm operations started to give way to innovative and nation-wide practices, and progressive and scientifically-based procedures. Factories replaced time-honored means of producing all kinds of products. Old-time craftsmanship no longer held a useful place in many communities. In order to move mass-produced products, improved roads were created, thus increasing mobility. Ease of movement affected almost everything.

Prior to the start of the nineteenth century the three-aisle NWD barn was well adapted to the farming ways and manners of those who used it. The form of the classic Dutch barn followed traditions established in medieval Netherlands and western Germany.

The post-1820 economic environment created severe competitive pressure to produce cheap foodstuffs. Farmers were forced to increase their efficiency and to grow and store larger amounts of crops. Farmers in the NWD cultural hearth had previously relied on traditional methods of farming and the three-aisle barn served their purposes. Pressures to increase farm efficiency and changes in agricultural practices resulted in the adaptation and alteration of numerous NWD barns. In several counties of New Jersey this was affected by re-orientation of their roofs and the inclusion of substantial side bay areas. Side-wall entrance barns were the result.[23] In Ulster County the response included construction of variations including U-barns and other forms. In the upper river valleys of New York the answer often seems to have been the swing-beam barn.

One sub-type that retained NWD barn H-frames and which utilized the side-wall wagon entrance concept is the ramp barn, encountered in Rensselaer and Albany Counties. These barns provide the all-important side-wall wagon entries and in most cases expansive storage capacities. So it may be stated that some farmers stubbornly maintained the use of H-frames in their barns but were, nevertheless, still developing responses to the intense competitive economic pressures discussed above. It seems that in most examples, the ramp barns of both counties date in the 1800 to 1850 period, and perhaps later.

Photo 3. Exterior view of the side-wall wagon-entry swing-beam barn in Bethlehem Township, Warren County, New Jersey. Note the one-bay addition of the barn at the right.

A structure that had as its fundamental mode of construction a series of parallel H-frames arranged in a three-aisle form had become unmanageable unless altered. Low side walls impeded efficiency and storage space. Certainly, some three-aisle barns were built in larger sizes after 1810. But in the eyes of many farmers in the upper river valleys an alternative to the classic NWD barn was imperative. The swing-beam barn was the apparent answer.

The Swing-Beam Barn as an Alternate Barn Form

A new barn form needed to facilitate efficient and expanded storage, distribution and removal of farm crops. A side-wall entrance structure with high or relatively high side walls was just such a barn (Photo 3). Farm crops could be efficiently transferred from a wagon when it was driven into the central bay. Crops were moved to the areas above the end bay stables, filling the bays to the roof peak.

In classic NWD barns only a relatively small volume of farm crops had been deposited in the side aisles from loaded hay wagons. Comparatively speaking, the amounts of farm crops stored in end bays in swing-beam barns and that in side aisles in Dutch barns were markedly different (Photo 4). As far as storage areas high above the wagon floor were concerned, they were perhaps more or less equal in each barn type. The storage capacity and efficiency of movement in the average swing-beam barn was, however, clearly greater than that of the typical NWD barn.

The other apparent reason for the success of the swing-beam barn type was the swing-beam itself. Many things can be discussed about swing-beams but their precise function is still being debated. This topic has for a few decades been a decided point of contention among a number of barn observers.

Swing-Beams and Their Characteristics

Recall that swing-beams can occur in both one-level barns and two-level bank barns. For ease of explanation the following discussion is basically limited to aspects seen in one-level barns. Unlike NWD barns that normally have anywhere between four and seven anchorbeams, swing-beam barns often have just one swing-beam.

Most one-level barns that have swing-beams are three-bay structures, but four-bay barns are also known. In four bay examples, the "extra" bay adjacent to the "middle" bay can be said to be an "abbreviated bay" or "accessory bay area." They are basically an added area or alcove of the middle bay. They are generally four to six foot wide expansions of the middle bay where the swing-beam is suspended across the full width of the barn. Some examples in Montgomery and Washington counties of New York contain four bays of equal width. The additional bay was apparently intended to accommodate the "swinging around" of horses or other farm stock. This topic will be further discussed below.

The swing-beam, when it appears singly in a barn, most often stretches across the full depth of the barn. As stated above, its defining characteristic is the lack of intervening posts or braces below the beam, leaving the area below the beam totally unobstructed. Although unusual, a few examples have swing-beams that do not extend the full width of the barns they are a part of. One example of this is located in the Town of Ames, in southwest Montgomery County, New York, in which the beam extends about two-thirds of the width of the barn where it engages a vertical post that extends to the upper tie beam of the bent. Another one-level barn dated 1785 at the Paxson farm in Solebury Township in eastern Bucks County, Pennsylvania has a swing-beam of similar form. A third example, in a two-level banked structure dated 1805 in Exeter Township in Berks County, Pennsylvania, features a swing-beam that extends from the rear wall to a post that stands four feet from the front wall. Apparently each proved adequate for their intended purpose.

Photo 4. Interior view of the side-wall entry ground barn in Cranbury, Middlesex County, New Jersey, showing the expansive upper area of the end bay beyond the swing-beam.

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Swing-Beam Barn *(continued from page 5)*

Photo 5. The 1′-7 1/2″ high swing-beam of the same barn, which measures 36 by 26 feet overall.

Dimensions of Swing-Beams

Swing-beams, especially those in one-level barns, often are of a size that rivals the anchorbeams of NWD barns. They are typically between one and two feet in height, with examples of about 1′-6″ frequently encountered. The author has seen perhaps two dozen barns with swing-beams between 18 and 24 inches in height. A one-level barn in Hunterdon County has a swing-beam that measures 2′-2″ high at its mid-point. One almost gets the impression that the builder or farmer was "showing off." Another barn in Warren County has a swing-beam that is 1′-11 1/2″ in height. One swing-beam in a Canadian barn was supposedly 2′-4″ in height. J. T. Jenkins of Elginburg, Ontario reported an example which was 2′-3″ in height at its center.[24] Jenkins also reported another barn (a banked structure) that he saw in mid-2010 that had a swing-beam that measured an astonishing 35 inches in height! In contrast, the greatest height of an anchorbeam recorded in a NWD barn, an example in Monmouth County, New Jersey, is 25 inches. Widths of swing-beams (horizontal faces) are most often between 10 and 13 inches.

Swing-beams are rarely of uniform height along their entire lengths. They are often arched, that is, they are greater in height at their mid-points than where they attach to posts at the side walls (Photo 5). A number of NWD barns have similarly-formed anchorbeams. Sometimes the arching of swing-beams graduates to a point several feet from their mid-points at each side of the beam and levels off in height so that they reach maximum height for perhaps six to ten feet in the middle third of their lengths. Examples are depicted in the Arthur and Witney barn book.[25]

Often the lower corners of swing-beams are neatly chamfered with lambs tongue ends. Their soffits frequently range between 6 feet and 7′-6″ above the floor; with most examples being between 6′-8″ and 7′-0″ in height. A barn on Bartley Road northwest of Chester in Morris County, New Jersey had its swing-beam located remarkably 11 feet above the barn floor.[26]

The clearance of swing-beams is decidedly lower than that used for anchorbeams. The soffits of anchorbeams typically vary between 10 and 11 feet above the floor. The need for greater height in the elevation of anchorbeams is easily explained: in NWD barns the movement of wagons is, of course, beneath the anchorbeams while wagons entering a swing-beam barn travel parallel to the beams.

Evidence of Pole Holes in Swing-Beams

Many swing-beams in New York State retain evidence of the use of vertical poles, one end of which would have been inserted into a hole or socket at the mid-point of the beam by one of two means. The first method was by way of a hole measuring about three inches in diameter and several inches deep, centered on the soffit of the swing-beam at its mid-point. Alternatively, a wooden bracket or cleat was secured to a vertical face of the swing-beam, by which the top of a pole could be secured. Variations in this second type are found. In each case a vertical pole was inserted into the hole or bracket, depending upon which alternative was chosen. The pole extended from the beam to the floor. The pole is supposed to have been engaged to a wooden "conical block" that was studded with many dozens of stout pegs. One surviving example can be seen in the Henry Ford Museum in Deerborn, Michigan. Apparently a horse was tethered to the wooden pole. The horse or other farm animal followed a circular path below the swing-beam and the conical block rotated with its movement. The pegs crushed strategically placed crops placed on the barn floor, thus separating seed from chaff.

Pole holes are more commonly encountered in New York barns than in their New Jersey counterparts. Evidence of pole holes is also seen quite often in anchorbeams in

Photo 6. View of circular arrangement of tapered planks in a shed attached to a Pennsylvania Standard fore-bay barn in Lehigh County, Pennsylvania.

Photo 7. The back side of the swing-beam in the ground barn in Cranbury, Middlesex County, New Jersey includes widely spaced mow poles to support farm crops in end bay.

NWD barns in the Schoharie and Mohawk River valleys as well as the upper Hudson Valley in New York. They are rarely seen in southern New York or New Jersey barns.

Anecdotal Evidence of Action of Horses in Circular Motion

The author met a farmer at his four-bay three-aisle barn in the Town of Wright in northeast Schoharie County in May 1994. The man asserted that he met a Mr. Schaeffer at his farm in the mid 1950s, and that at that time Mr. Schaeffer was in his 90s and thus born probably in the 1860s. Schaeffer had related a story that a wooden contrivance as described above allowed horses to go around in a circle in barns.[27] Either he himself actually saw the action of the horse connected to the device or he was told a story of the action of a horse in a barn.

The curious thing about the supposed circular motion of the horses below swing-beams is that the circular grooves that might be expected to have been left on the floor are nowhere in evidence. This statement applies to both swing-beam barns and to NWD barns fitted with poles. Although it seems doubtful, perhaps the depth of the crops precluded any damage to the floor.

This author has seen two examples of flooring strategies that seem to have been devised in response to the circular motion of tethered animals. In a barn measuring 26 feet square and attached to the back of a large Pennsylvania stone fore-bay barn just north of Route 222 in Upper Macungie Township in Lehigh County, Pennsylvania, are found wedge-shaped planks arranged in a circle (some original planks were removed and replaced) around a six or seven foot diameter circular void area without planks. This entire floor sits on top of a subfloor. The width of the planked circle is about eight feet in diameter (Photo 6). Another structure, a banked stone barn at the Little Farm at Corker Hill Orchards near Scotland in Franklin County, Pennsylvania, has an octagon-shaped planked area of flooring in one of the wagon bays. The adjacent wagon bay floor planks were laid in the normal longitudinal manner. The octagonal portion of the floor consists of many wedge-shaped planks. A hole measuring about 3″ in diameter is located in its center. The first example shows definite circular wear marks, the second does not.[28]

End Bay Mow Poles Joined to Swing-Beams

Many swing-beams retain a series of 3″ or 4″ square mortises on their reverse vertical faces (that is, the sides facing away from the wagon floor). These mortises received round sapling mow poles which spanned the width of the end bays (Photo 7). Their outside ends rested on the top of the end wall tie beams. These poles were spaced from about 12 to 15 inches apart in some barns to as much as 3 feet apart in other examples. A few barns retain their original sapling mow poles. One example is a barn likely of pre-1800 date near Frenchtown off Route 519 in Hunterdon County, New Jersey, where most of the poles remain in place.

General Comparisons among Some Swing-Beam Barns

Although most swing-beam barns are constructed similarly, differences do exist. For example, sometimes the post extension above the upper chord or tie of the swing-beam bent is quite short as seen in a barn on the north side of Route 443 near Schoharie in Schoharie County, New York. In contrast, the post extensions of an example seen in Bethlehem Township in Warren County, New Jersey are considerably longer.

A comparison of the elements of one-level barns and those of two-level bank barns have yet to be undertaken. More research is needed to understand the important differences found among swing-beam barns, particularly those encountered in west-central New Jersey. Variations among New Jersey barns are not confined to those with swing-beams.

Alex Greenwood and Elric Endersby of the New Jersey Barn Company stated in a conversation to the author in the mid 1990s that they once calculated that there were at least 27 different "hybrid" NWD barn types in the state, many of which are found in this section of New Jersey. A number of the barn types have swing-beams incorporated into their structures. The two timber framed barn types,

Photo 8. Interior cantilevered beams support a transverse beam in this circa 1785 barn in the Oley Valley, Berks County, Pennsylvania, which may have functioned as a swing-beam.

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Swing-Beam Barn *(continued from page 7)*

Photo 9. Swing-beam and almost seven foot wide alcove area in an Exeter Township, Berks County Standard barn dated 1805. The beam left clear a wide area for threshing and a turnaround area for animals attached to wagons.

namely, those of NWD type and the swing bean type, seem to be on some level adaptable to each other.

Innovation seems to have been the order of the day in west-central New Jersey. There are so many variations among the barns in that portion of the state that years will be required to identify the regional traits and construction features used. As an example, a barn in the Sarepta section of Warren County just west of Route 519, which was initially constructed c.1810 as a one-level barn, has two swing-beams. A few decades later the barn was repositioned on top of a newly constructed basement, converting it into a Pennsylvania Sweitzer fore-bay bank barn. Any Sweitzer in New Jersey is extremely rare let alone built with a re-cycled one-level swing-beam barn as its upper half. Any observer of west-central New Jersey barns knows that the area is a hot-bed of barn building variations.

Other distinct variations of the swing-beam barn exist. An excellent barn of rare type is located on the Stapleton farm in eastern Oley Township in Berks County, Pennsylvania. This c.1785 one-level variant three-bay barn has a series of eleven cantilevered beams which are actually the inner ends of the ceiling joists of the end bay stable area. The beams cantilever four feet above the threshing floor, creating additional space for threshing. This particular barn lacks a swing-beam per se (Photo 8). The author knows of no other example of this particular arrangement. This barn might represent one of the early variations that preceded the development of the swing-beam.

Just three miles away from this example, in Exeter Township, is a stone Pennsylvania standard fore-bay barn dated 1805, featuring a rare king post, which has a swing-beam. As mentioned above, the swing-beam in this barn stretches from the rear eave wall to within four feet of the front eave wall where it intercepts a vertical post. The placement of the beams above forms a space or alcove 6′-9″ adjacent to the threshing floor (Photo 9).

The Barber Swing-Beam Barn

A good example of the type is found in the Barber barn on Route 30 in the vicinity of Watsonville, Town of Fulton, in Schoharie County, New York. It was documented in May 1992. The barn is located a few miles southwest of the village of Middleburgh on the east side of Route 30 and a little west of the Schoharie Creek.

Exterior Features

The Barber barn is a gable-roofed one-level frame structure of three-bay construction, having a middle wagon bay and two end bays. The exterior dimensions of the barn are unusually large at 60′-8½″ on each side or eave wall and 50′-1¼″ on each end or gable wall. The barn measures just over 3,000 square feet in size; there are relatively few NWD barns with similar dimensions. Many barns with swing-beams are more typically between 35 and 40 feet wide (Photo 10).

The Barber barn may be the biggest one-level swing-beam barn built in the first quarter of the nineteenth century anywhere in the upper river valleys in New York State.[29] The upper post extension of considerable length of the swing-beam bent (unmeasured) attests to the apparent date of construction (Photo 11). The associated farm house is located to the south of the barn.

The original siding on the Barber barn was horizontal. The wagon doors on the side facing the village appear to be original and are of frame construction with mortise and tenon joinery. The wagon doors on the opposite side (house side of barn) were likely originally also of frame construction. Doors of this type are not unusual to find in swing-beam barns; in NWD barns they are rare. One side wall had what appeared to be an original pentice over the wagon door opening; it had three horizontal pentice arms. The wagon door opening toward the house side has three

Photo 10. Exterior view of Barber swing-beam barn near Schoharie, New York with its horizontal siding and side-wall wagon entry (Photo by Grace Barber).

Photo 11. Interior view of bent includes a swing-beam in a ground barn in Schoharie County on Route 443 in New York. This bent flanks a wagon bay and has an upper tie beam; the side-wall post extension above the upper tie is quite short.

in situ beam stubs indicating the former location of a pentice on that side of the barn.

Interior Features

The Barber barn is of three-bay construction and it has four transverse bents. The wagon or middle bay is 11′-4″ in width. The end bay closer to the road is 27 feet wide and the opposite or far bay measures 22′-0½″ wide. The height of each side wall is just shy of 19 feet.

There are sixteen pairs of medium-sized hewn rafters. The roof is supported by means of a vertical queen post system. The tie beam between the queen posts measures 8″ x 7½″ in section and 23′-9½″ in length. Both purlin plates are spliced. Single raising holes are present in each of the four main bent posts, at each eave wall.

Swing-Beam Bent

The swing-beam in the Barber barn is one of the largest above floor level beams seen by the author in a barn in the northeast. It is over 50 feet long and just over 20 inches in height at its mid-point. This length is more than 15 feet greater than the longest anchorbeam in any NWD barn. The beam is of hemlock or *Tsuga canadensis* (Photo 12).

The swing-beam bent consists of two posts with two large transverse tie beams, two vertical queen posts and a tie that stretches between these posts, and various strategically placed braces. The upper tie beam is quite large (1′-2″ x 11¾″) in section, and is eight feet in the clear below the queen post tie beam. The space between the bottom of the upper tie and the top of the lower tie (the swing-beam) measures 2′-8″. Its cross sectional dimensions were measured at five points along its length.

1. One foot from post, house side = 1′-7″ x 1′-2″.
2. Twelve feet from post, house side = 1′-7¾″ (height only)
3. At the mid-point = 1′-8¼″ (height only)
4. Twelve feet from the post, away from house side = 1′-8¼″ (height only)
5. One foot from post, away from house side = 1′-7½″ x 1′-1½″

The variation in the heights as recorded here are not at all unusual, but the width of the beam is impressive. This particular swing-beam has little of the arching seen in many other beams in barns of the type. The connection to each post is triple pegged; the joint has square shouldering, commonly seen in these barns. More uncommon are the double braces at each end of the beam (Photo 13). The swing-beam is just 6′-4″ above the floor—a few inches lower than the typical height of a swing-beam.

The Barber barn is an outstanding vernacular structure that should be preserved and protected for future generations. The length of the swing-beam is particularly impressive. The visitor is struck with awe, wondering what special means were used by the builders that allowed a timber of such great size to be incorporated into the building.

Wood Species Used in Swing-Beam Barns

Hemlock was often used in barn construction after about 1820; previous to that date pine was more frequently used in the Schoharie and Mohawk River Valleys. Many of the main timbers in the Barber barn are hemlock. Certain other swing-beam barns were constructed of pine. Almost all the principal structural members of New Jersey examples, whether of one-level or two-level type, are of oak construction.

Photo 12. Interior view of Barber barn, showing massive 50+ foot long swing-beam.

(continued on page 10)

Swing-Beam Barn *(continued from page 9)*

Photo 13. View of double end braces that join the swing-beam of the Barber barn to its side-wall posts. Note the three pegs at union of beam to post and use of square shouldering.

Additional Function of Swing-Beams in Bank Barns

Swing-beams in two-level bank barns are likely to have had a function in addition to their being an aid to threshing. This theory was offered by Tony Jenkins, a timber framer in Ontario, Canada. After hay wagons were unloaded the horses were unhitched from the wagons. The horses were then turned around in the space below and to the side of the swing-beam. The horses then moved along the space or alcove and out to the other side or rear of the wagon near the wagon doors. In the meantime the wagon itself was turned around and below the swing-beam so the wagon front faced the rear wall of the barn. The wide unobstructed space below the swing-beam (no posts or braces below) allowed for such wide "turning around" movements of horses and wagons. Then the horse was again hitched to the wagon and the horse and wagon exited the barn. This is a plausible extra benefit of the introduction of swing-beams. This second use may have also occasionally occurred in one-level barns, but probably happened to a considerably less degree than in bank barns. It should be noted that circular threshing by horses or other farm animals may not have occurred in many two-level bank barns.

Swing-Beams in Other Barn Types

In addition to the barns noted above, at least one other barn of rare type includes a swing-beam in its framing. This barn, located near Barker Road in the Town of Mohawk in Montgomery County, is a one-level three-bay structure with a side-wall wagon entry. A full barn width about 40 feet long transverse swing-beam of large size (1′-9 1/2″ at its mid-point), flanks the one side of the middle bay. Two longitudinally oriented equally-spaced 12″ high anchor-beams extend from posts placed on top of the swing-beam over the narrow 13-foot wide middle bay and join to posts which abut the wagon bay. The date of construction of the barn is likely c.1820-40. Needless to say, the barn builder/farmer at the homestead had a unique idea.

One large c.1850 frame bank barn of five-bay construction on the Vass homestead near Hartwick in Warren County, New Jersey has two distinct swing-beams adjacent to each other. The bay between the beams constitutes a mow. West-central New Jersey also has across its landscape many Pennsylvania bank barns a few of which actually combine with H-frames. Hundreds more Pennsylvania barns in this area have swing-beams as part of their upper floor level structures. This suggests the great utility of these beams in a wide variety of barn types. In an early example, a swing-beam was made part of a Pennsylvania fore-bay barn in Berks County as early as 1787.[30] Approximately 18 fore-bay barns in Makefield Township in eastern Bucks County in Pennsylvania—in an area that abuts the Delaware River—have swing-beams.[31] A double-decker (three floor level) barn dated 1809, in Chester County has a swing-beam with a king post associated with it, a combination rarely encountered (Photo 14). In Orange County, New York, there are approximately 150 early or pre-1825 English style one-level side-wall entry barns. About 45 of them have been identified and one example, constructed c.1825, incorporates a swing-beam.

Summary and Conclusions

In the past fifty years American barns have been looked at and investigated in a way that was rarely undertaken prior to that time. Most early barn types have been critically examined and documented and their features have been delineated in books and journal articles. The major barn types include New World Dutch barns, Pennsylvania fore-bay barns, German *grundscheiere*, English side-wall entry barns and swing-beam barns. The last two have yet to receive adequate attention in the literature.

It has been asserted here that the swing-beam barn is an American invention. Its earliest documented appearance is

Photo 14. Detail of interior of double decker barn at the Wickersham farm in Chester County, Pennsylvania, dated 1809. Note the forked metal support that connects the vertical king post to the swing-beam, which spans more than forty feet.

in the 1780s but it is likely that the type appeared before then. The fact that swing-beams were incorporated into barns in areas as widely separated as Berks County, Pennsylvania and west-central New Jersey as early as the 1780s attests to their great utility and acceptance by farmers and builders of varied cultural origins.

In the latter part of the second quarter of the nineteenth century the construction of three-aisle NWD barns fell into decline. Change forever dogs the steps of mankind and its ways and the basic form of NWD barns proved inadequate to modern agricultural purposes. The Industrial Revolution particularly wrecked havoc on the continued use of the three-aisle barn in the upper river valleys in New York State. The swing-beam barn in many cases served to answer the call of the day after 1810 or 1820. The two barn types co-existed but the classic NWD barn was infrequently built after about 1830. The use of the swing-beam continued for several decades after that time.

Perhaps the science of dendrochronology might someday provide answers with respect to the dates of construction of the earliest remaining swing-beam barns. But the question of where and when these barns first appeared may not be able to be answered. Another question which remains to be answered is that of dissemination. In what manner did the concept of the use of swing-beams in side entrance barns spread to other areas? Or did the idea spread at all? Its appearance in various areas may have been spontaneous and unrelated to the traditions of other areas.

When John Fitchen began his study of the New World Dutch barn in the 1960s he was attempting to teach himself a new architectural language. He categorized a number of the components and details of the barn type and in doing so he synthesized a body of information that was previously only briefly considered. We are at that same point in the study of swing-beam barns.[32]

The appearance of publications after about 1800 that promoted new agricultural practices spawned an economic environment wherein the building and use of swing-beams in barns played a significant role. A progressive idea such as the swing-beam must have been seen as useful to many farmers wanting to successfully compete in the era of the Industrial Revolution. The mechanisms that spread their adoption across broad regions remain difficult to ascertain. Much work remains to be done before the history of use and design of this barn type becomes clear.

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1 Information via e-mail from Walter R. Wheeler to the author on 2 December 2011 that stated that an ad in *The Albany Gazette*, 1 November 1790, p.1 includes a statement for the sale of real estate of the Jacob Zimmer property in Schoharie on the Schoharie Road (Schoharie County). The property included "…a fine English barn." In addition to this citation, Wheeler stated that he saw a swing-beam barn in the Town of Florida in Montgomery County that appears to date to the 1790s. This barn appeared to be contemporary with a three-aisle barn on the same property.

It would seem very doubtful that that this barn citation would refer to a classic built English side-wall wagon entry barn (with side-wall posts with gunstock posts) that occupied innumerable cultural landscapes in New England. Perhaps by using a process of elimination, removing the classic New England type English barn and the NWD barn as possibilities, seemingly the Schoharie "English barn" could only be what we would normally refer to as a swing-beam barn. This can not of course be verified.

Since this ad appeared in 1790 it would seem reasonable to say that the barn likely was constructed at least a decade or possibly more prior to that time. It remains possible that the swing-beam barn style in the upper river valleys of New York was conceived and constructed in response to the absolute devastation that was brought upon the classic NWD barn during the Revolutionary War era raids. At the end of the war there had to have been a great disruption of man power and ability to obtain materials. This "misalignment" of resources after the war has been well documented for Ulster County. See the Thomas Wermuth reference below. This is the reason that the long-held building tradition of constructing three-aisle barns with the distinctive major-minor rafter systems in Ulster County ceased by the time of the war. No barn known to the author, which was built after the war, made use of this type of roof structure. Perhaps the upper river valleys and its adjustment to post-war times resulted in the manufacture of swing-beam barns.

2 An article on the Deyo/Armour three-bay swing-beam barn appeared in the *Hudson Valley Vernacular Architecture Newsletter* 2: 4 (August 2000), 1.

3 Hubert F. Jicha. *Bank Barns in Mill Creek Hundred, Delaware*. Honors Thesis, University of Delaware, 1984. See three examples of swing-beam barns, 38-41.

4 Christopher Stratton and Floyd Mansberger. *An Architectural Assessment of the Davidson Barn, Rural Eureka, Woodford County, Illinois*. (Fever River Research, Inc., Springfield, Illinois for the Board of the Davidson Barn Preservation Project, Eureka Illinois, January 2008), 10-126. In addition, on 22 December 1999, Wayne Price sent Robert Ensminger an Illinois state road map with the locations of seven swing-beam barns indicated.

5 Eric Arthur and Dudley Witney. *The Barn: A Vanishing Landmark in North America* (Greenwich, CT: New York Graphic Society Ltd., 1972), 208 and 210.

6 Conversation with Molly McDonald, architectural historian, on 7 December 2011. See Molly McDonald and William Krattinger, "The Swing-Beam Barn in Southern Washington County, New York," in *Timber Framing* 103 (March 2012), 4-9. They have uncovered an early nineteenth century contract that describes the building of a barn that includes the term swing-beam. Molly states that she has found in archival sources several other citations to the term swing-beam used in barns in the nineteenth century.

7 Charles Edward Whitcombe. *The Canadian Farmer's Manual of Agriculture: The Principles and Practice of Mixed Husbandry as Adapted to Canadian Soils and Climate* (Toronto: James Adam and Company, 1874), 21.

8 Jared Van Wagenen Jr. *The Golden Age of Homespun* (New York: Hill and Wang, 1953), 239-241.

9 Eric Sloane. *American Barns and Covered Bridges* (New York: Funk and Wagnalls, 1954), and *An Age of Barns* (New York: Funk and Wagnalls, 1966), 58.

10 Eric Arthur and Dudley Witney. *The Barn: A Vanishing Landmark in North America* (Greenwich, CT: New York Graphic Society Ltd., 1972), 67, 208 and 210.

11 Henry Glassie. "The Variation of Concepts within Tradition: Barn Building in Otsego County, New York," in *Man and Cultural Heritage*, volume 5 of *Geoscience and Man*, edited by H J Walker and W G Haag (Baton Rouge: Louisiana State University 1974), 177-235.

12 Richard W. Babcock and Lauren R. Stevens. *Old Barns in the New World: Reconstructing History* (Lee Massachusetts: Berkshire House Publishers, 1997), 97 and 162. See also two other publications by Babcock which include materials on this barn type: *The Barns at Wolf Trap: A History of the Barns and Their People* (N. P.: The Author, 1982), and *Barns in the Blood, Master Builder, Discoverer* (N.p.: The Author, 1993).

(continued on page 12)

[13] Daniel Fink. *Barns of the Genesee Country*, 1790-1915 (Geneseo, NY: James Brunner, 1987), 94, 108, 116 and 118-122.

[14] Elric Endersby and Alex Greenwood. *Barn: The Art of a Working Building* (Boston and New York: A David Larkin Book, Houghton Mifflin Company, 1992), 174-175 and 192-193.

[15] Robert F. Ensminger. *The Pennsylvania Barn: Its Origin, Evolution and Distribution in North America* (Baltimore and London: The Johns Hopkins University Press, 2003), 241, 262-263, and 265.

[16] Allen G. Noble and Richard K. Cleek. *The Old Barn Book: A Field Guide to North American Barns & Other Farm Structures* (New Brunswick, NJ: Rutgers University Press, 1995), 78.

[17] Swing-beam barns were discussed in the following issues of the *Newsletter*: 2:2 (June 2000), 3, a barn in Schoharie County; 2:4 (August 2000), 1, for an Ulster County barn; 3:5 (August 2001), 2, 4-5 for three barns in New Jersey; 8:3 (March 2006), 4 and 8:4 (April 2006), 4, for two barns in Dutchess County. This author (GH) published a short article, "A Preliminary Inquiry into the Appearance and Nature of Swing-Beam Barns," which appeared in the Timber Framer's Guild *12th Annual Eastern Conference Speakers and Sessions Catalogue* (1996), 12. It included a discussion on the barn type in New York and New Jersey and an illustration of a swing-beam in a c.1790 barn near Frenchtown in Hunterdon County, New Jersey.

[18] John Fitchen. *The New World Dutch Barn*. Edited and with new material by Gregory D. Huber (Second edition, Syracuse: Syracuse University Press, 2001), 88.

[19] Fitchen, second edition, 208 and 212

[20] Information from Robert F. Ensminger, in a conversation with the author.

[21] This includes Ellen Van Olst and the late Jaap Schipper.

[22] Thomas S. Wermuth. *Rip Van Winkle's Neighbors: The Transformations of Rural Society in the Hudson River Valley, 1720-1750* (Albany: State University of New York Press, 2001), 91-113.

[23] Gregory D. Huber. "Ninety Degree Roof Rotations in New Jersey Dutch Barns," *Material Culture* 31:1 (Spring 1999), 1-20.

[24] Conversation with Tony Jenkins of Elginsburg, Ontario, Canada during the first week of January 2011 about the use of swing-beam barns.

[25] See pages 66, 242 and 243 of their book for three examples.

[26] The author saw this barn in September 1996 and it was in excellent shape. Its present condition is unknown.

[27] Conversation with Carl Stolzenburg on 28 May 1994, at his farm in the Town of Wright, Schoharie County, New York. We discussed the visit of Mr. Schaeffer to his farm in the mid 1950s. Schaeffer referred to the use of wooden conical blocks.

[28] Dianna Heim. *Cumberland Valley Barns: Past and Present* (Shippensburg: Shippensburg University Press, 1995), 13.

[29] The next large-sized barn of its type may be the one northeast of the Village of Schoharie on the north side of Route 443 just a mile or so outside the village. It measures 43 feet wide.

[30] This date is carved on the wagon entry lintel.

[31] Jeffrey Marshall of Heritage Conservancy (Bucks County, PA) told the author that there are likely 15 to 20 bank barns in the Makefield area of Eastern Bucks County, PA that each possesses a swing-beam.

[32] The author wishes to thank Robert Ensminger, the pioneer historian of Pennsylvania fore-bay barn architecture, who helped me with the location of several barns in Pennsylvania with swing-beams. He also informed me about articles which contain references to swing-beams.

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