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National Park Service

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National Register of Historic Places Inventory—Nomination Form

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Agricultural Buildings and Complexes in Mill Creek Hundred, 1800-1840

and or common

2. Location

street & number see individual nominations ___ not for publication

city, town Newark X vicinity of

state Delaware code 10 county New Castle code 002

3. Classification

Category	Ownership	Status	Present Use	
___ district	___ public	X occupied	X agriculture	___ museum
X building(s)	X private	___ unoccupied	___ commercial	___ park
___ structure	___ both	___ work in progress	___ educational	X private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	X yes: restricted	___ government	___ scientific
X thematic group	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
NA		___ no	___ military	___ other:

4. Owner of Property

name Multiple Ownership

street & number

city, town ___ vicinity of state

5. Location of Legal Description

courthouse, registry of deeds, etc. New Castle County Recorder of Deeds

street & number City/County Building, 800 French Street

city, town Wilmington state Delaware

6. Representation in Existing Surveys

title Delaware Cultural Resource Survey has this property been determined eligible? ___ yes X no

date 1978-1985 ___ federal X state ___ county ___ local

depository for survey records Bureau of Archaeology and Historic Preservation
Old State House, The Green, P.O. Box 1401

city, town Dover state Delaware

AGRICULTURAL BUILDINGS AND COMPLEXES IN MILL CREEK HUNDRED, 1800-1840

7. Description

Condition		Check one	Check one
_x_ excellent	___ deteriorated	_x_ unaltered	_x_ original site
_x_ good	___ ruins	_x_ altered	___ moved date _____
_x_ fair	___ unexposed		

Describe the present and original (if known) physical appearance

The seventeen sites included in the thematic nomination, "Agricultural Buildings and Complexes in Mill Creek Hundred, 1800-1840," physically document a period of sudden change in the built environment of this agricultural region in the piedmont area of New Castle County. The 1800 to 1840 period is, essentially, a rebuilding period that effected major changes in building materials, construction methods, and style. This rebuilding is closely related to a number of social and economic forces including a sudden rise in population, an increase in land values, agricultural specialization, development of local industries, and improvements in transportation. The selection of sites for this nomination was based on the existence of a period barn, since barns were the primary indicators of economic and social change in this agricultural society. Therefore, not all of the sites contain a house of the same period. The barns in this study reveal the break that was made from the log building construction of the eighteenth century to a preference for stone and frame construction in the nineteenth century. Analysis of the framing systems show an early preference for traditional, and often idiosyncratic, methods of construction; and a gradual evolution toward a standardized form that was less labor intensive.

The seventeen sites in this nomination contain, in total, 55 contributing buildings, 14 non-contributing buildings, and one non-contributing structure. The total number of acres contained within the boundaries of these sites is approximately 198.5.

The sites discussed in this nomination are situated in the central and northern areas of Mill Creek Hundred. In Delaware, the term "hundred" has been used as a political subdivision of a county since the late seventeenth century. Mill Creek Hundred is a 43 square mile area located in the northwestern part of New Castle County. It is bordered by Red Clay Creek on the east, by White Clay Creek on the south and west, and by the Delaware/Pennsylvania state line on the northwest. Mill Creek Hundred is the southeasternmost extension of the Piedmont Plateau, consisting of deep, friable, well-drained soil on a gently rolling landscape. There is an underlying layer of micaceous gneiss and schist, with which many of the early buildings were constructed. The fall line between the Piedmont Plateau and the Atlantic Coastal Plain is roughly parallel to Route 2 (Kirkwood Highway) and is effectively the southern border of the Hundred. This is also the southernmost limit of the traditional bank barn type in Delaware, except for a few examples of popular origin in southern New Castle County.

Most of the sites are located in rural areas that are still complementary to the historic origins of these farms. Suburbanization of Mill Creek Hundred has caused several sites to be overshadowed by housing developments or apartment complexes. Each site contains a barn that was constructed during the 1800 to 1840 period. However, due to a differing rate of survival for dwellings, some of the houses that accompany the barns are later in date, or have been modified in later periods. On three of the sites only the barn survives. The houses in this nomination range from simple one-room-plan types, to center-hall types with Federal style and Greek Revival style ornamentation. Several houses retain an early core, but experienced a later rebuilding period when Gothic Revival and Queen Anne styles became popular.

Because the emphasis of this nomination is on the analysis of early barn types, a discussion of barn forms and functions, and barn construction will follow. Survey methodology will also be described.

Barn Forms and Functions

The Mill Creek Hundred bank barn is typically a gable roofed, rectangular, bi-level or tri-level building with storage for hay and a threshing floor on the upper level, and stables in the lower level. The bank barn is so-called because it is sited parallel to a hill or it has an artificial ramp allowing access with a wagon to the upper level. On the opposite side, the front, there is access into the stables from the ground level.

The upper level is entered via the ramp through double doors that are hung on large strap hinges on older barns, but more frequently are hung with rollers on a track. Often in one of the hinged doors is a smaller door for ease of entry. The upper level is divided into three bays. Bays are defined by structural units of posts and beams that bisect the barn transversely, called bents. The bents also define longitudinal bays by the number of spaces created by the principal posts. The typical Mill Creek Hundred barn is three bays long by three bays deep. The one level tripartite form is better known as a Yankee, Connecticut, or Double Crib barn and is an ancient form that was used across Europe and Great Britain before being transmitted to colonial America and Canada. The double doors open into the center driveway and threshing floor bay flanked on either side by a hay mow. This center bay was originally used for threshing grain, by flail at first, and then by threshing machines. A domestic size door is on the opposite wall of the large double doors. When the opposing doors were opened it created a crossdraft for winnowing, the process of separating the grain from the chaff by tossing it in the air. This bay was, and is used for storing idle wagons or tractors, but primarily is used for driving a wagon on and unloading hay, loose then, bales now, into the hay mows. The bents are walled up with thick, wide boards four feet high in the center, and up to eight feet on the sides in order to keep in the hay. In the hay mow floors are rectangular holes, variously placed, for dropping hay to the stables below. These openings measure roughly three by four feet and are kept open by four saplings, one at each corner, that go up to the rafters and are held together with horizontal boards forming an open sided chute. On the upper level there is always a stair to the lower level which is usually placed along the wall beside one of the wide doors. These stairways are framed-in and have their own door.

The lower level contains the stable for livestock which originally housed cattle and horses. When still in use, today's farmer uses it similarly for dairy cows, or for stabling horses. It is difficult to determine the precise original lower level arrangement since most barns have undergone change or the stalls have been removed altogether. Many farmers poured concrete floors and installed steel stanchions in efforts to modernize, and to create a more sanitary environment; a trend strongly encouraged by agricultural literature at the turn of the century. However, from posts, extant stalls, and modern steel stanchions something can be learned about original stalling arrangements. This arrangement is related to the position of the doors leading to the cow yard. There are usually three to five doors in this long wall, each open into an aisle that leads to a longitudinal aisle along the opposite long wall. This is especially true for modern or modernized stables such as the 1910 Kellig barn (N-9588) on Old Paper Mill Road. The older arrangements seem to be much less open as revealed by the extant stalling in the circa 1800 R. Peters barn (N-9581) also on Old Paper Mill

Road. This barn has five doors with transverse aisles, however, the two end doors open into walled-in transverse stalling with no passage to the center. The circa 1810 J. Stinsen barn (N-195) on Corner Ketch Road echos this arrangement although most of the stalls have been removed. In the Stinsen barn, a central, transverse aisle leads into the longitudinal aisle along the ramp long wall, dividing the barn into two units of stalling. The southeast gable wall has two doors, one opens into a stable, the other opens into the longitudinal aisle. Most barns have one or more gable end doors. The J. D. Forrest barn (N-207), known as the Frederick barn, on Thompson Station Road, is a very large structure and has a longitudinal, center aisle serviced by a door centered in each gable end. Horse stalls were kept separate from cattle stalls as horses were considered the more valuable and fragile animal. Gable end doors probably indicate a separate egress for the horse.

A large percentage of Mill Creek Hundred barns and nearly half of those in the nomination have three stone walls with a frame front wall, indicating a recessed stable wall on the lower level. The stable wall is recessed from three to ten feet. Usually, the earlier barns have shallower recessions. Almost half of the earliest barns have this trait, and it persists throughout the nineteenth century. This "forebay" of the upper level is included in the overall structure and is not cantilevered like many of the "Swisser" barns of Pennsylvania. The function is completely different as well. While the "Swisser" forebay, often a frame forebay on a stone barn, was used as a granary and other functions disparate from the main barn, the Mill Creek Hundred forebay is a contiguous part of the upper level with no changes in form or function. The recessed wall and resultant overhang provides an extra measure of protection for the livestock, and a shelter for other activities. The stable wall can be seen as a variable component in defining the lower level arrangement. Its placement does not change the barn's form or its internal arrangement.

The tri-level from of the bank barn is known as the "double decker" or "Quaker" barn in southeastern Pennsylvania. A double decker has the same basic form and plan of a two level barn except the driveway is raised high enough for rooms to be created beneath it. The hay mows remain at the same level as these rooms, thus making it much easier to toss the hay down from the driveway, and to store greater amounts of hay. The rooms beneath the driveway had various functions. In the J. D. Forrest barn (N-207), the middle level has a granary, a tack room and a trap door stair to the lower level. The J. McDaniels barn (N-10,099) on Paper Mill Road has a corncrib, granary, two small stalls and a hay drop to the lower level. These barns are extraordinarily large with the raised driveway and sunken hay mows. Access to the raised driveway is from a steep, artificial slope which stops 10 to 15 feet before the barn wall. The gap is covered by a bridge house, a gable structure perpendicular to the barn. The bridge house had a variety of functions. It was used for implement or wagon storage when the center bay was full or being used. The bridge house frequently contains a corn crib on one or both long walls incorporated into the structure. The D. Eastburn barn (N-10,271) has a corn crib along one wall and grain bins along the other. Beneath the bridge house a number of activities took place. On double decker barns, a central doorway is in the long wall which opens to the area beneath the driveway. This door is often set at wagon height so that a variety of items, especially bags of grain, could be loaded and unloaded easily.

A barn does not have to be a double decker to have this feature as several two level barns have bridge houses. The D. Eastburn (N-10,271) and the J. Stinsen (N-195) bi-level barns, both on Corner Ketch Road, have a bridge house with corn cribs. Most bridge houses are first period construction.

Additions were built onto virtually every barn. Some barns were altered a little, others so much that the original barn is buried. Some additions were added so regularly that a few later barns incorporated them into the original structure.

The most common addition was the straw shed on the front long wall. This can be seen on the dated 1809 William Morgan barn (N-326) on the Wilmington-Landenburg Road in Corner Ketch. This all-stone barn has an opening knocked out of the front long wall in order to provide access to the lean-to straw shed. Originally, this barn did not have a forebay, so the shed provided extra shelter for the cattle. Frame barns were added to more easily than the stone barns. The J. McDaniels barn (N-10,099), a double decker, has a small gable in the center of the straw shed roof in order to provide headroom over the raised driveway. Some barns have gable straw sheds which are usually larger than the lean-to variety. These gable additions have the same divisions as the barn, the upper level for hay and the lower for livestock.

The circa 1870 Mrs. Guthrie barn (N-9580) located on Limestone and Little Baltimore Roads, takes this addition to its logical conclusion by including the gable wing as a part of the original construction.

Another numerous addition is the gable end lean-to wagon shed. This was added to create more space to store implements and wagons. Often a corn crib was incorporated along the outer long wall. The area beneath the shed was less often used for stabling than for implement storage.

The rarest form of addition was another bay constructed next to the gable end and incorporated into the building. Only two barns in the nomination have this feature, one of which was an extraordinarily small, two bay barn - the John Bishop barn (N-4076), which was expanded to the normative three bays; and the D. Eastburn stone barn (N-10,271) which had two frame bays added to its gable end. These two bays formerly had a separate entrance, and was, in effect, a separate barn sharing a common wall with the first barn.

The Mill Creek Hundred barn form is vernacular, a descendent of the barns in Great Britain, modified and adapted as the generations passed. Construction of the Mill Creek Hundred bank barn form finally ended in the early twentieth century when barn plans were drawn from pattern books rather than tradition.

Barn Construction

The barns of Mill Creek Hundred can also be typed according to construction material. There are all stone barns which have stone walls up to the gable peak. There are two types of stone and frame barns: stone walls with frame gable peaks; and stone

walls up to the gable peak with a frame front long wall (which indicates a recessed stable wall). The majority of barns built were frame with stone basement walls, as was the case in Pennsylvania. These barns are braced timber frame with large timbers (a 7 by 7 inch timber would be a typical size) which are joined together by mortise and tenon joints. The timbers are finished in various ways. They can be left in the round as logs, or partially so. They can be hewn by broad-axe leaving a roughened finish with tell-tale vertical slashes. Or they can be sawn. There are two ways that the timbers were sawn: vertical sawn or circular sawn. Barns that have all vertical sawn timbers were usually associated with a mill. Most barns have hewn principal timbers with vertical sawn secondary members such as rails and braces. In late nineteenth and early twentieth century barns, all timbers are circular sawn. Although circular sawn timbers were common at the turn of the twentieth century, older methods were still in use. There is a stone barn (N-4064) dated 1898 on Old Wilmington Road with hewn principal and sawn secondary timbers.

The earliest extant barns in this nomination are all stone or stone with a frame front wall. The surviving barns are less an indication of dominant building material and more a tribute to stone's durability. The stone walls are constructed with micaceous gneiss and schist, the underlying rock of the Piedmont Plateau, known generically as fieldstone. Slaked limestone was used for mortar and stucco. Pointing is generally quite plain except for the J. Lindsay barn (N-284) which has dark fieldstone delineated by fine pointing. Some barns were finished with a pebbled stucco, such as the J. McCormick barn (N-1613).

The stone walls were laid uncoursed in consecutively narrower sections. Wall thicknesses vary from 18 inches to 24 inches with a typical barn wall being 19 inches thick. Large rectangular fieldstone quoins tie the stone walls together at the corners by their alternating placement on each wall.

The stone walls of the lower level are much the same on frame and stone barns. Most of the window edges are rounded on the interior with a gentle taper, about 12 inches wider on the inside than the outside, to allow more light in. Although some windows had arched lintels, most had stout timber lintels overhead. The windows themselves are various but the W. M. Peters barn (N-9586) on Old Paper Mill Road still has the original horizontal, wood mullions. Arches are more common over doors than windows, and brick was used more often than stone. The reason brick was used more often for making arches is that it is a much easier medium to work with. The hard, metamorphic rocks of Mill Creek Hundred are difficult to shape into the wedges most desirable for making arches.

The ends of the walls by the front long wall, tend to be either a fat 1/4 round knob, or a two foot jog around the corner. This is especially true when the stable wall is recessed and the girder spanning the distance needs the extra support. Conical or 1/4 round columns were sometimes built to give intermediate support for the forebay girder or for additions like straw sheds. Most frame barns are sided with vertical board. On earlier barns, the boards were left plain as in the case of the Mrs. Armstrong (N-10,909) and R. Walker (N-10,266) barns, but most often there are thin

vertical strips called battens nailed over the spaces between each board. This "board and batten" was a part of the late nineteenth century country gothic style and is the predominant form of siding in Mill Creek Hundred.

Frame barns are most often painted red but other colors such as white and green are represented as well as applications of oil, or no paint at all.

Roofing materials are almost exclusively wood shingles nailed to lathes perpendicular to the common rafters. In the latter part of the nineteenth century, cupolas began to grace the roofs of some barns because of the emphasis on ventilation as espoused by agricultural pattern books. But nevertheless, cupolas remained few in Mill Creek Hundred.

The barns of Mill Creek Hundred are built in the braced frame tradition. Even within stone walls, the timber frame infrastructure is needed to define space and provide support for the roofing system. Vertical and horizontal members are joined by mortise and tenor joints held fast by wooden pegs called "pins." Most joints in Mill Creek Hundred have just one pin, rarely two.

Different types of joints are used for specific purposes. The bridled joint is used at the apex of common rafters, and a scarf joint is used to join two timbers into one piece, similar to splicing a rope. The scarf joint is an important factor in dating a barn. Generally, the more complex joints are on earlier barns.

The typical bent of mid-nineteenth century Mill Creek Hundred has four posts roughly equally spaced with a tie beam across the top and upbraces joining the posts to the tie beam. Lower down are horizontal members connecting post to post and forming the basis for the wall which retains the hay. The roof structure has common rafters on principal purlins supported by angular purlin struts with braces emanating from the tie beam.

The upper level floor is supported by transverse log joists which are hewn on top and bottom (face hewn). Sometimes the log was left round with just the top hewn and was often left with the bark.

The joists supporting the bents, and into which the bent posts are joined, are always hewn or sawn square. These joists stretch from one long wall to the other or else lap on the supporting central girder. Joist ends rest on the stone walls and are tenoned or notched onto the sill. One or more large centered girders which support the joists span from gable end to gable end. In early barns, like the J. Eastburn (N-4011) and the William Morgan (N-326) stone barns, the girders are a single hewn timber of immense proportions, 13 inches by 11 and 14 1/2 inches by 13 1/2 inches respectively, each 50 feet long. Plank joists which are tenoned into the girders are rare.

Every component is important in the barn but probably the most significant is the bent, the transverse section of the frame. The Mill Creek Hundred bent seems to go through four phases. The first phase, the period of significance in this nomination, is

quite diverse in bent types and roof structures and dates roughly from 1800 to 1840. The common denominator in defining the first phase is its diversity of bent types and the reliance on horizontal timbers. The first phase is characterized by the use of the tie beam lap-dovetail assembly. At the end of the first phase bents are regularized into the four post bent form.

The second phase, dating from the 1840's to the end of the century, consists of a regularized four post bent with a different type of post, girt (tie beam) plate assembly. In this case, the post head has a simple slot or open mortise into which a tenoned girt easily fits. The plate sits on top of the post-girt assembly.

The third phase, popular around the turn of the century, is similar to the second except that large diagonal timbers are used in end bents and long walls. This method was espoused by agricultural journals as a way to eliminate small braces.

The fourth phase dates from 1910 through the 1930's, and is characterized by diverse bent types drawn from pattern books and agricultural journals. These barns no longer adhere to the three bay tradition and even stray from the practice of braced frame building into plank or balloon frame methods.

The first phase bent form is defined chronologically from 1800 to circa 1840 and typologically by the use of the flared and notched post. Approximately the first half of this period defies a general description of bent because of the diversity of forms. These forms range from the five post J. Walker barn (N-285) bent to the large cambered beam bents of the J. Eastburn barn (N-4011) and the 1809 William Morgan barn (N-326). These early period barns generally have a notched and flared purlin strut. Even the roofing system was not regular as indicated by the common rafter roof of the J. McIntyre barn (N-1098), and the principal rafter roof of the J. Stinsen barn (N-195).

As the period progressed, bents became more regularized into four post bents with rails. The cambered beam was reduced to an arched center rail. The flared strut disappeared and was replaced by the straight strut. In a couple of cases, the flared post-tie beam assembly is reversed with the plate framed over the tie beam. This meant that the bent could be raised as a unit and represents the end of the traditional use of the tie beam lap-dovetail assembly. When and where the flared post assembly was transformed into the slotted post assembly is not known. There are no known barns with both types of posts.

The Mill Creek Hundred bank barn essentially retained the tripartite form and its primary function as fodder storage over stables throughout the nineteenth century. Although form, use and materials remained the same, construction methods evolved from a craftsman tradition to a more rationalized method of building. From complex joinery to balloon frame construction, the evolution of the Mill Creek bank barn tells the story of industrialized agriculture.

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Survey Methodology

In 1984 and 1985, an architectural survey of Mill Creek Hundred was conducted by Hubert F. Jicha, III, Planning Aide for the New Castle County Department of Planning. The survey was accomplished by driving along each segment of public road network, and down private lanes with the permission of landowners. Each structure dating prior to 1945 was mapped and then described on a Delaware Cultural Resource Survey form. Each structure was photographed with 35 mm black and white film in such a manner to record its essential architectural character. Upon completion of the fieldwork, the photographs, negatives and forms were coordinated and a permanent Cultural Resource Survey (CRS) number was assigned to each site. This survey data will be stored at the Bureau of Archaeology and Historic Preservation in Dover, Delaware.

The seventeen sites included in this thematic nomination were chosen from the surveyed sites after documentary research indicated that many of the surviving barns from the 1800 to 1840 period defined an important era in Mill Creek Hundred. The National Register Criteria for Evaluation were used to arrive at the final list of eligible sites.

This survey and National Register project was coordinated with the State Historic Preservation Plan to further the goal of inventorying and evaluating cultural resources statewide.

8. Significance

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	x agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	x architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	___ engineering	___ music	___ theater
x 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation
___ 1900–	___ communications	___ industry	___ politics/government	___ other (specify)
		___ invention		

Specific dates c. 1800–1840 **Builder/Architect** Unknown

Statement of Significance (in one paragraph)

The properties included in the Mill Creek Hundred Agricultural Buildings and Complexes Thematic Nomination are eligible for inclusion in the National Register of Historic Places under Criteria A and C: historic events and architectural significance. The seventeen sites included in this nomination, in particular the bank barns, are significant because they reflect the transformation of agricultural and rural work during a period of major growth in Mill Creek Hundred. Four factors are important in this transformation: a large population increase; a decrease in farm size by one third; the increase in the number of durable buildings (as defined by stone); and the expansion of local industry. As "working" symbols of "new" agriculture, bank barns reflect the transformation of rural society to its most efficient form through the intensive utilization of land, day labor, work space, and building materials. Thus at a time of increasingly competitive interests, diminishing farm size, and local demographic pressure, the barn becomes a symbol of an emerging progressive and industrialized social and economic order in rural Mill Creek Hundred.

The settlement of Mill Creek Hundred essentially begins when William Penn secured the "lower three counties" from the Duke of York in 1682. Prior to this, the hundred only had a handful of Dutch and Swedish traders and a tribe of Indians called the Lenni-Lenape who immigrated west by 1750. Delaware became a colony in 1704. William Penn had originally intended to settle Pennsylvania in an orderly fashion by establishing tiers of townships surveyed prior to settlement. Penn defeated his own plan by selling large blocks of land to speculators and by setting aside blocks of land for his family called "manors." Although intended to conserve woodland, these manors were in reality held for speculation. One such manor given to Penn's daughter was called Letitia's Manor or Steyning Manor, which included a large portion of land in Mill Creek Hundred. In the early 1700's squatting was widespread and settlement came before survey in the back country. Settlers sought warrants (deeds) for their land to protect their improvements. This process took from five to twenty years, and even as long as 75 years. In the 1790's, William Morgan of Corner Ketch (N-326) paid the agent of Letitia Penn for land settled in 1715. By 1765, the Penns recognized the futility and inefficiency of their plan. The Penns resolved the problem by permitting squatters to take out warrants, and made land more available by lowering the price.

Mill Creek Hundred was settled almost exclusively by immigrants from the British Isles. Early settlement was by English and Anglo-Irish Quakers between 1700 and 1750. A mix of English and Anglo-Irish Friends established a meeting house (N-330, NR) in Hockessin in 1737, after they had been meeting in William Cox's house (N-4085) since 1730. The specific origins of the Quaker settlers are not known, although many were from the northwest portion of England. It is clear that the Anglo-Irish Quakers were either English or immediate descendents of English settlers in Ireland, such as Simon Hadley (N-1098), an Irish Friend whose father was from Lancaster, England.

The Scotch-Irish also settled in Mill Creek Hundred fairly early, as indicated by the establishment of Presbyterian churches. Although there were English Presbyterians, the Scotch-Irish were almost always associated with that denomination. The Scotch-Irish came to southeast Pennsylvania in great numbers between 1725 and 1755, and many of them entered via the port of New Castle before making their way north. Churches were established in the 1720's in Mill Creek Hundred, although services may have been held as early as 1713 near White Clay Creek. The White Clay Creek church was established in 1721 and installed Pastor Thomas Craighead from Ireland in 1724. The Red Clay Creek Church was organized in 1722 but did not have a regular pastor until 1755.

Catholics were very few in number and it was only in the late nineteenth century with the influx of Italian immigrants that their numbers increased.

If established churches have any relevance to settlement patterns and population density, then the non-sectarian English were in the minority. A single Anglican church was established near Stanton in 1720 but it was shared with Swedish Lutherans who eventually merged with the Anglican church in the 1790's. The scattered locations of these churches and the early establishment of services indicates widespread, though not dense, development by the first quarter of the eighteenth century, by an almost totally British population.

Tax assessment records of 1798, 1804 and 1816 reveal the extent of change in the first quarter of the nineteenth century. Land was not held in extensive tracts in Mill Creek Hundred except for the speculative Letitia Manor held by the Penns. Even so, this tract was sold off by the 1750's. By 1798, roughly the beginning of the significant period in this nomination, farm size averaged 126 acres. The architectural landscape was one of primarily log buildings, especially barns. Over 60 percent of the buildings assessed were log. Surprisingly, one-fifth of the dwellings were stone.

Changes began to be evident by the time of the 1804 tax assessment. Although taxables had increased only slightly and farm size decreased slightly, the change from impermanent architecture (as defined by log) to durable architecture (as defined by stone) had already begun. The incidence of stone building had increased significantly: stone dwellings had increased by half and the number of stone barns had doubled. Log buildings had decreased slightly in number.

The most significant and drastic changes are revealed by the 1816-17 tax assessment records. The number of taxables had increased since the 1798 and 1804 assessments by nearly 50 percent. Other manuscript sources show that the general population had increased by one-third. Farm size had decreased by one-third. Tenancy had also decreased. The most visible change was in the architectural landscape. Log buildings were noticeably supplanted by stone buildings. Log dwellings had decreased by one-third, and stone dwellings had doubled in number. Farm complexes were transformed most of all. The number of stone barns had tripled, they accounted for one-third of all barns assessed. Equally dramatic, the log barn was disappearing. From 1798 to 1816 the number of log barns had already diminished by 80 percent. The log outbuildings of Mill Creek Hundred were so totally obliterated that not one example is extant today.

Unfortunately, data is not available for later tax assessments. However, the trend is quite clear. A major rebuilding had occurred resulting in the transformation of the architectural landscape. Land values had skyrocketed, some increasing by as much as ten times the previous assessment. For instance, the 230 acres of the William Morgan Farm (N-326) was assessed at $920 in 1804, in 1816 the same acreage was assessed at $11,500. Demographic and economic pressure forced farmers to use their land intensively. Thus, even though overall acreage was reduced, over 80 percent of the land was improved. Farmers turned to the most work-intensive and the most efficient form of farming-dairying.

By 1850, Piedmont farmers in general, and Mill Creek Hundred farmers in particular, had turned to dairy and livestock farming. Grain was raised for livestock feed, especially oats; and wheat and butter were sold as cash crops. These farms had high ratios of animals and machinery per acre, and raised the fattest, most productive animals in the state.

During the late eighteenth century, prior to the period of significance in this nomination, general mixed farming was the common practice in the mid-Atlantic region. Farmers in Mill Creek Hundred participated in the wheat culture of Philadelphia by raising wheat as a cash crop in addition to the crops and livestock grown for home consumption.

The land was good. Sectarian groups such as the Quakers who were communal in character have been shown to have been excellent farmers and careful husbandmen. Even so, due to the extensive clearing of land, erosion in Mill Creek Hundred occurred to such an extent that small streams formerly navigable were silted up by the end of the eighteenth century.

In response to the poor farming technique in the mid-Atlantic states, an agricultural reform movement began, promulgated by agricultural journals, agricultural societies, and concerned individuals. One such individual was John Spurrier from neighboring Brandywine Hundred, Delaware, who, in 1793, published a book called The Practical Farmer. This treatise of proto-agricultural reform encapsulated the goals of the agricultural reform movement. Farmers were encouraged to keep detailed records to determine profit-loss margins, to use more efficient implements and buildings, and to practice the "three grand secrets of agriculture": judicious application of manure, proper course of crops (crop rotation), and thorough tillage. Mill Creek Hundred farmers responded early to the reform movement. By 1816, the Eastburn-Jeanes lime kilns (NR district) were producing large amounts of burnt lime for the local market. An early steam engine tractor was experimented with in the 1820's, and Oliver Evans revolutionized the milling industry with his invention of automated machinery. Later in the movement, writers advocated the "Pennsylvania" bank barn as the best and most efficient farm building. As early as the 1820's, the bank barn was a compelling agricultural image. Many travelers commented in published travel journals on the spacious and ingenious buildings, invariably ascribing them to German settlers.

The origins of the Mill Creek Hundred bank barn pre-date the agricultural reform movement. It is difficult to attribute absolute lineage to a definite source when several ethnic groups with similar building forms have been compressed into such a small area as southeastern Pennsylvania. Other studies have shown that there are two sources for this barn form; the Germanic areas of Europe, especially Switzerland; and the northwest portion of England, known as the Lake Counties.

The evidence is strong that the Mill Creek Hundred bank barn is derived from the English barn. British settlers occupied the hundred early, and many of those were Quakers. British immigration into southeastern Pennsylvania waxed and waned throughout the eighteenth century but continued strongly in the last quarter of the eighteenth century. Thus, the introduction and reinforcement of the bank barn form was possible some time after initial settlement.

The similarities between the Mill Creek Hundred bank barn and the Lake Counties bank barn are almost completely restricted to form: the rectangular shaped building sited parallel to a hill slope. Other features are derived from braced frame traditions in other parts of England. The tie beam lap-dovetail assembly with the flared post was used all over England, and, in the words of one English scholar, was "fundamental to the British tradition of timber framing." This assembly was used in Mill Creek Hundred up to the 1840's and, perhaps, occasionally beyond. It was one factor in helping to define the period of significance for this nomination. Another English feature found in three early barns is the edge-halved scarf joint, a complex joint not used after the early nineteenth century.

While certain elements of framing are clearly derived from English precedent, the bulk of the framing methods used in Mill Creek Hundred are much different from any English or Continental types. Other studies have shown, particularly in early New England, that carpentry practices began to be altered considerably in response to the new environment well within the first generation of settlement. A very early Mill Creek Hundred bank barn is a good example of the transition between Old World and New World barns.

The circa 1760 William Phillips barn (N-4085) is clearly a building with English antecedents. Built by English Quakers, this barn is framed with massive hewn timbers and was originally sided with riven (split) clapboard. The roofing system is a hybrid of methods combining collared principal rafters with clasped purlins which are supported by angular struts. The form differs from later Mill Creek Hundred barns as well. It is a five bay barn with two entrances and driveways, and an unusually small center bay.

The William Phillips barn is important as an antecedent to the barns in this nomination, and it serves as an example against which to compare the evolution of bank barns in Mill Creek Hundred that had occurred up to the second quarter of the nineteenth century.

The Mill Creek Hundred bank barn, which emerged in the nineteenth century, retains roughly the same form until the twentieth century. The internal infrastructure reveals

J. McCormick stone barn (N-1613) has end bent roof trusses and inner bents with the girts framed below the post heads.

The standardization of the bent type was a process of experimentation within the three bay form. Before the slot head post assembly was developed, the builders in Mill Creek Hundred experimented with different forms of posts and different methods of joining the post-girt-plate assembly.

The roofing system went through a less prolonged development period. Some early roofs deviated from the principal-purlin-with-angular-struts scheme. The circa 1810 J. Stinsen barn (N-195) has principal rafters with collar ties, a type of roof that was used in the north of England as well as in some eighteenth century dwellings in Delaware. The circa 1830 J. McIntyre barn (N-1098) has common rafters without principal rafters or principal purlins.

The flared strut with the notched seat for the purlin was probably not used beyond the 1830's. The back of the "seat" which touches the rafter was originally tenoned into the rafter. This can be seen in the circa 1760 William Phillips barn (N-4085) where the principal purlin is "clasped" between the strut and the principal rafter. The last vestige of this feature can be seen in the dated 1809 William Morgan barn (N-326) where the strut end is tenoned into a common rafter.

The circa 1825 David Eastburn barn has a plain and straight strut which apparently works just as well as its more complex relative. This was also used in the circa 1835 J. Walker barn (N-10,266) and the 1803 J. Gregg barn (N-285). The transformation of the flared strut to the straight strut appeared to be a relatively easy process. Perhaps used in conjunction with principal rafters, once the roofing system was changed and the tenon was no longer needed it was merely cut off as a useless appendage.

The development of the double decker or tri-level bank barn with the raised center driveway and bridge house was the most dramatic change in Mill Creek Hundred barns. This change was less evident in form than in increased functional capability. Earlier barns have a slightly raised driveway such as the dated 1803 J. Gregg barn (N-285) but nothing foreshadows the development of a tri-level barn. The tri-level barn form was not drastically different from the bi-level type except for, perhaps, the addition of the bridge. Framing was merely expanded vertically to accommodate the extra level. The J. McDaniels barn (N-10,099) is framed like a bi-level barn with two sets of sills. Other barns like the J. Walker barn (N-10,266) and the dated 1825 S. Dennison barn (N-1096) have posts which extend the full two levels. The greatest change brought about by the raised driveway was the expansion of the hay mows and the additional space created beneath the driveway to enclose other activities within the barn. From extant partitions it can be seen that these spaces were used as bins of grain for feed, corncribs, stalls for isolating animals, and as a throughway to the area beneath the bridge house.

The bridge house has two possible antecedents. In England, similar gable-roofed structures called midstreys were built perpendicular to the barn and were used to store

wagons full of unthreshed grain when the wagon could not be pulled on to the threshing floor. In Switzerland, another similar gable-roofed structure was built on the gable ends of barns. These bridge houses sometimes spanned a gap between the hill and the barn.

There are additions on almost every Mill Creek Hundred barn. These additions reveal the building requirements of farmers as agriculture became more specialized and mechanized. The most numerous addition is the straw shed which was built largely after 1850. The straw shed seems to be an American innovation invented to store the increased amounts of hay needed for dairy specialization. The widespread use of this addition perhaps explains why so many later stone barns had frame front walls. The Thomas Pierson stone barn (N-1104) and the J. McCormick stone barn (N-1613) appeared not to have had siding on the frame wall portion at all, indicating that the straw shed was built along with the barn. The J. Walker double decker barn (N-10,266) and the S. P. Dixon double decker barn (N-4072) have small shed-roofed straw sheds which also appear to have been a part of the original structure. However, the majority of straw sheds were additions, expanding the storage capacity of barns considerably.

Gable end wagon sheds also reveal the storage requirements incurred by farmers after acquiring implements. As shown in the 1850 agricultural assessment, Mill Creek Hundred farmers had one of the highest ratios of machinery to acreage in the state.

Additions are traditionally viewed by architectural historians and others as appendages which alter the original lines and compromise the integrity of a building. The additions on the Mill Creek Hundred barn are vital to the interpretation of local history as they reveal the barn as a functional building and as an evolving indicator of agricultural change.

The Mill Creek Hundred rebuilding cycle is related to a general period of rebuilding in the mid-Atlantic states. Extensive rebuilding occurred in Virginia in the late eighteenth century, in Mill Creek Hundred in the first quarter of the nineteenth century and in southern New Castle County about mid-nineteenth century. Rebuilding periods are linked with, as studies have shown, not only economic changes but social changes as well. Thus, the farmers of Mill Creek Hundred were not just replacing impermanent log buildings with more durable stone buildings; they were making a statement about their social status and prosperity as well.

At the turn of the nineteenth century, Mill Creek Hundred was quite advanced in comparison to the other parts of Delaware in terms of population density, economic growth, and agricultural prosperity. With their agricultural expertise, Mill Creek Hundred farmers took advantage of the rich soil and deposits of limestone to build up some of the highest land values in the state.

Southern New Castle County, on the other hand, from 1800 to 1820, suffered considerable out migration after crop failures due to bad farming practices. It was not until farms were consolidated into the hands of business and reform-minded individuals that enough capital was generated to rebuild the architectural landscape of that area.

9. Major Bibliographical References

See continuation sheet.

10. Geographical Data

Acreage of nominated property Approx. 198.55 total; see also individual sites.

Quadrangle name Kennett Square, PA-DEL &Newark East, DEL Quadrangle scale 1 : 24000

UTM References See individual sites.

	Zone	Easting	Northing
A			
B			
C			
D			
E			
F			
G			
H			

Verbal boundary description and justification

See individual nominations.

List all states and counties for properties overlapping state or county boundaries

state	NA	code	NA	county	NA	code	NA
state	NA	code	NA	county	NA	code	NA

11. Form Prepared By

name/title Hubert F. Jicha, III and Valerie Cesna / Historic Preservation Planners

organization New Castle County Department of Planning date May 1986

street & number 2701 Capitol Trail telephone (302)366-7780

city or town Newark state Delaware

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state X local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature John R. Kern

title date

For NPS use only

I hereby certify that this property is included in the National Register

date

Keeper of the National Register

Attest: date

Chief of Registration

N-195 "J. Stinsen Farm"

Richard and Alice Burke
750 Corner Ketch Road
Newark, Delaware 19711

N-258 "Bartley-Tweed Farm"

Reed and Hilda Williams
51 Fox Den Road
Newark, Delaware 19711

Alan W. Zimble
507 Blackgates Road
Wilmington, Delaware 19803

N-284 "J. Lindsay Barn"

L. H. Associates
c/o John A. Faroane
1213 King Street
Wilmington, Delaware 19801

N-285 "J. Walker Farm"

Augie and Norma DelCoglin
4 Derickson Drive
Wilmington, Delaware 19808

N-326 "William Morgan Farm"

Norman T. Dempsey
850 Corner Ketch Road
Newark, Delaware 19711

N-1098 "J. McIntyre Farm"

Alletta Laird Downs
933 Center Road
Wilmington, Delaware 19807

N-1104 "T. Pierson Farm"

Wilson T. Pierson
R.D.1, Box 206
Hockessin, Delaware 19707

N-1110 "Springer Farm"

Hilmar Fritze
Box 198, Route 1
Hockessin, Delaware 19707

N-1613 "J. McCormick Farm"

Mrs. W. Newlin Mitchell
3300 Newport Gap Pike
Wilmington, Delaware 19809

N-4011 "J. Eastburn Barn"

Estate of Samuel Hallock duPont
c/o Richard S. duPont
P.O. Box 3998
Greenville, Delaware 19807

N-4072 "S. P. Dixon Farm"

Mrs. Henry B. duPont
1004 Wilmington Trust Center
Wilmington, Delaware 19801

N-4076 "John Bishop Farm"

Thaddeus H. Spencer
100 Windward Road
Greenville, Delaware 19807

Daniel D. Friel
Box 4319
Greenville, Delaware 19807

N-10,099 "J. McDaniel Farm"

Meadowdale Development Corporation
1605 Ayre Street
Newport, Delaware 19804

N-10,266 "R. Walker Barn"

Linden Knoll Homeowner's Association
c/o Howard Thorn
3604 Rustic Lane
Wilmington, Delaware 19808

N-10,271 "David Eastburn Farm"

Harry E. Eastburn
Mt. Cuba, Box 7
Yorklyn, Delaware 19736

N-10,909 "A. Armstrong Farm"

Ronald Paloni and Nazzareno Paloni, Jr.
R.D.1, Box 176
Hockessin, Delaware 19707

N-10,910 "J. Mason Farm"

Mrs. Henry B. duPont
1004 Wilmington Trust Center
Wilmington, Delaware 19801

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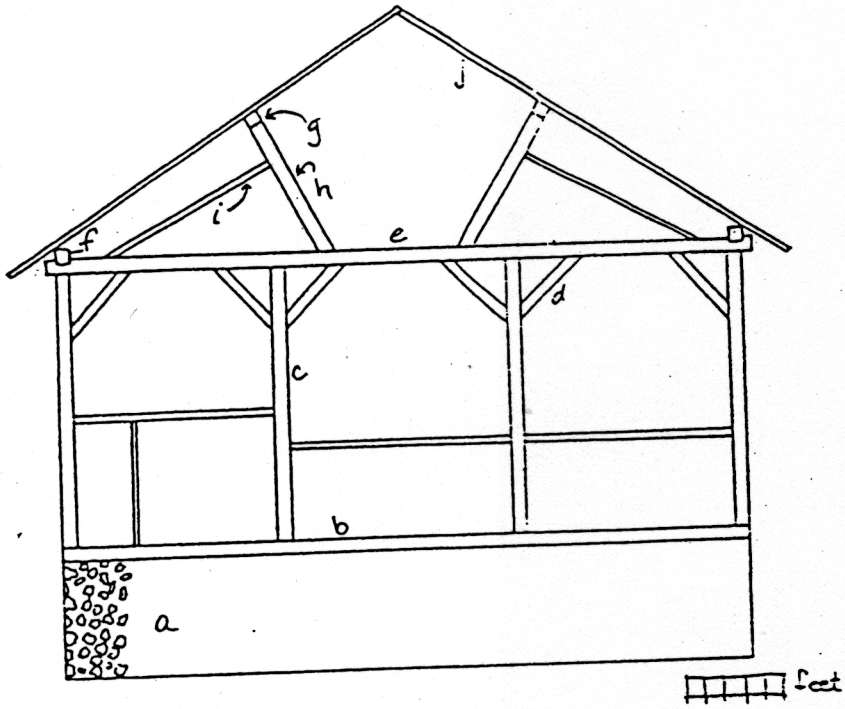
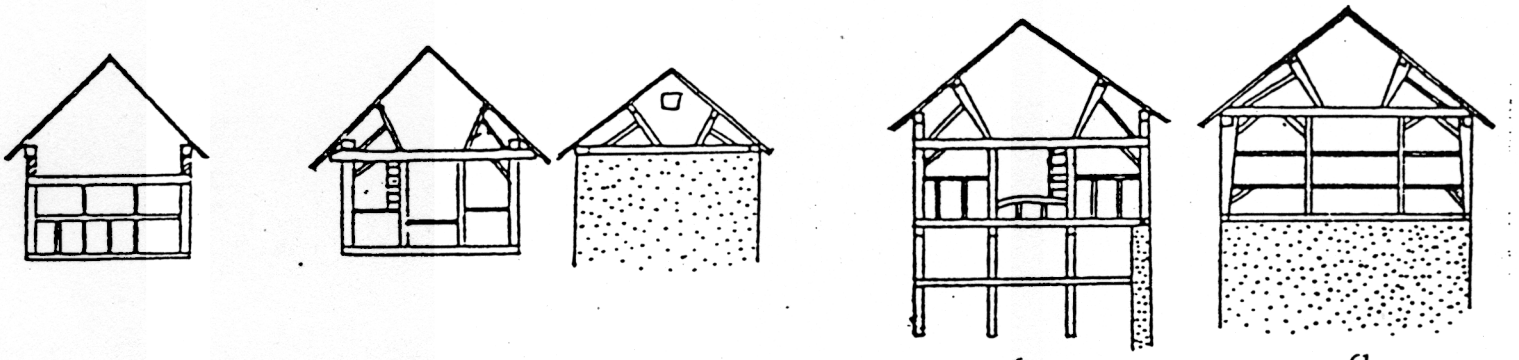


Bent Nomenclature: a) Field stone basement wall. b) Timber Sill. c) Post. d) Up Brace. e) Tie Beam. f) Wall Plate. g) Principal Purlin. h) Purlin Strut. i) Purlin Strut Brace. j) Common Rafter.

FRAMING SYSTEMS

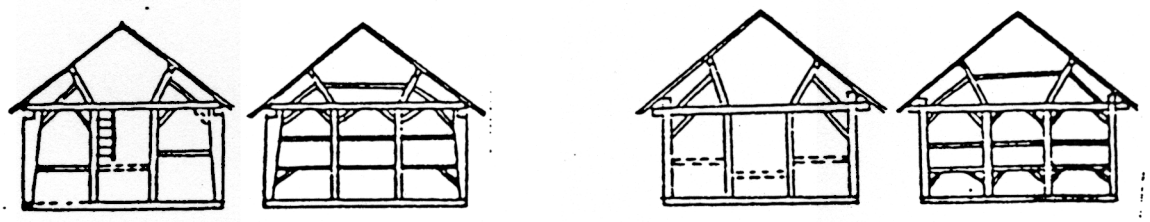
1 2a 2b 3a 3b 3c

1. N-285: dated 1803; inner bent
2. N-326: dated 1809; a. NE inner bent; b. SW inner bent
3. N-4011: circa 1810; a. NE inner bent; b. NE gable end; c. SW inner bent



4 5a 5b 6a 6b

4. N-1098: circa 1830; NE inner bent
5. N-10,271: circa 1825; a. NE inner bent; b. NE gable end
6. N-10,099: circa 1826; double decker; a. NW inner bent; b. NW end bent



7a 7b 8a 8b

7. N-258: circa 1835; a. SE inner bent; b. SE end bent
8. N-9586: circa 1840; standardized bent; a. NE inner bent; b. NE end bent