James W. Baker

"As Time Will Serve":

The Evolution of Plimoth Plantation's Recreated Architecture

In this plantation is about twenty houses, four or five of which are very fair and pleasant, and the rest (as time will serve) shall be made better.

Emmanuel Altham, September 1623[1]

Plimoth Plantation's recreated Pilgrim Village occupies an interesting niche in the interpretation of New England's vernacular architecture. It was the Plantation's aim at its founding in 1947 to recreate the famous Pilgrim community with the greatest possible historical fidelity. However, although an impressive amount of documentation was available about the Plymouth settlement, no original structures survived from which plans might be taken, and the site (at the center of modern Plymouth) was unavailable for archaeological examination. An acceptably accurate interpretation of the community through recreated architecture was a reasonable mission for Plimoth Plantation, but it was a different proposition from relocating and restoring original structures, as open-air historical museums usually do. Plimoth Plantation's architectural elements had to be hypothetical designs that could never be fully verified. The search for historical accuracy and an academic legitimacy apart from that conferred by the authenticity of original artifacts became the Plantation's central motivation. It strongly influenced the evolution of the museum, not only in its approach to recreating structures but also its entire curatorial and educational program.

What sets Plimoth Plantation apart from the various pageant backdrops, movie sets, and World's Fair exhibits that purport to recreate the past physically is the museum's commitment to an active program of structural modification and replacement according to the best available research. This approach is responsive to current historical opinion and is able to incorporate new information as it becomes available. Most

open-air historical museums, whether fully recreated exhibits (such as the Pioneer Village in Salem, Massachusetts, and Jamestown Festival Park), partially recreated and partially restored communities (such as Colonial Williamsburg), or collections of restored buildings (such as Old Sturbridge Village), tend to retain the interpretive designs current at the time of their initial installation; modifications are made infrequently if at all. The Plantation, on the other hand, takes advantage of its entirely recreated site to edit and refine the structural component of the exhibit continually. Houses that were once considered the last word in historical interpretation are razed and replaced with new structures incorporating the most up-to-date information and theories about early New England architecture.

This was not the case when the Pilgrim Village was first built. Its creators assumed that the original plans, by Strickland and Strickland of Boston, would create a permanent exhibit for the museum (fig. 1). However, interpretive designs inevitably reflect the attitudes of their designers and the time in which they are done as much as or more than they do the historical structures they represent. This is as often true of restored or reconstructed houses as it is of recreated ones. As James Deetz, former assistant director of Plimoth Plantation, observed, "If Myles Standish were to reappear in modern Plimoth Plantation, it is certain that he would not quite know where he was, any more than James Geddy would recognize resurrected Williamsburg as the town where he had worked."[2] A reconstructed village for which no architectural examples or tangible evidence exists runs an even greater risk of becoming merely a historian's pipe dream or a Disneyesque attraction.

In 1965, the Plantation board of governors assigned staff the task of reviewing the museum's goals, and a study commissioned by the Plantation management revealed problems with the Strickland representations of the earliest Plymouth Colony houses. This began the process of periodic reexamination, eventually extended to all of Plimoth Plantation's programming and exhibit assumptions, and led to the introduction of the living history and first-person interpretation initiatives the museum features today. The Plantation's effort to become as accurate an architectural interpretation as possible through a process of continual revision may not guarantee success, but it does result in a volatile program of construction that is particularly responsive to contemporary currents in the study of vernacular architecture. Plimoth Plantation built its first recreated structure in 1948. Since that time, the design of Plantation architecture has undergone three major (and several minor) revisions. These revisions and the debates that surrounded them recapitulate many of the concerns of both architectural historians and museum curators as knowledge of early colonial construction has advanced.

Recreating The Past At Plimoth Plantation, 1945–1956

In December 1945 Ralph Hornblower, a Boston investment broker, gave the Pilgrim Society of Plymouth twenty thousand dollars to acquire the land and plans necessary for the creation of an outdoor museum dedicated to the history of the Pilgrims and their Native American contemporar-

ies.[3] The popularity of the Pilgrim story in American culture convinced the Plantation's founders that such a memorial would attract a large audience and also deliver an important historical message to the world.[4] Pilgrim Society president Ellis W. Brewster presented the idea in a members' letter dated December 3, 1945:

> The thought is to begin the erection of a Pilgrim and Indian Village, which would include not only replicas of Pilgrim houses and of Indian tepees [*sic*], but also a museum where Indian relics might be displayed. Mr. Hornblower thinks too that some kind of an appropriate 'trading post' should be provided where handicrafts, pictures and other suitable things, especially of a Plymouth flavor could be sold. . . . Sales . . . together with a modest admission fee to the Village, would support the project.[5]

Naming Hornblower's son, Harry, as chairman, the Pilgrim Society formed a Pilgrim Village Committee on Forefathers' Day (December 21) of 1945.[6] The committee commissioned plans from the Boston architectural firm Strickland and Strickland, designers of the Ritz-Carlton Hotel, and voted to incorporate the Pilgrim Village project as an independent entity on June 17, 1947. The principals drew up an agreement of association on September 20, 1947, and on October 2, Plimoth Plantation, Inc., was incorporated as a "memorial to the Pilgrim Fathers."[7]

The project had its immediate origin in Henry (Harry) Hornblower II's youthful enthusiasm for the Pilgrims. As a summer resident of Plymouth in the 1930s, he became interested in the early history of the town and was convinced of the need to tell the "Pilgrim Story" better. Although not a Pilgrim descendant, Harry Hornblower had long been fascinated with Pilgrim/Wampanoag history. He continued this interest at Harvard and Berkeley, where he trained in anthropology and worked as an archaeologist in the summers. He explored a number of prehistoric Indian sites in the Plymouth Colony region and also pioneered in the field of historic archaeology by excavating colonial sites connected with the region's Pilgrim past.[8] Hornblower proposed the creation of an open-air exhibit similar to that of Colonial Williamsburg or Greenfield Village to improve upon the traditional commemoration of the Pilgrims through monuments, collections of relics, and memorial plaques. Plimoth Plantation was thus incorporated to construct an outdoor museum displaying a recreation of the Pilgrims' 1620s Plymouth village, the *Mayflower*, a contemporary Wampanoag Indian settlement, and possibly other exhibits. Such a museum would enable the visitor, Hornblower said, to find out "what it was really like back then."

Plimoth Plantation was inspired as much by patriotic ideals and the desire to communicate the particular history of the Plymouth Pilgrims as it was by collections of artifacts and structures. The project reflected its founders' deep-rooted assumption about the Pilgrim story and its historical relevance—that the Pilgrims had indeed played a seminal role in the development of American culture through their influence on freedom of religion, democratic government, public schooling, and the American judicial system. They believed that, with the end of Second World War, patriotic Americans needed to renew their sense of a common heritage.[9]

Fig. 2. *Built on Leyden Street for the 1921 Plymouth tercentenary, this log cabin was photographed and used as an illustration in Joseph Sawyer's* History of the Pilgrims and Puritans *(1922). Sawyer's caption noted the skepticism that already surrounded the log cabin theory. "Type of early log cabin erected at Plymouth's tercentenary celebration in 1921," it states, "but De Rasières tells us the houses were made of hewn planks." The log cabin stood where the entrance to the Brewster Gardens is today.*

The experiences of this small band of white middle-status English immigrants were seen to have importance not just for Plymoutheans, or New Englanders, or Americans, but for all peoples. As Harold Stassen put it in 1953, "Our America is taking to the world the old, but ever-new, ideas which were developed here in Plymouth."[10]

Yet the real Plymouth colonists were ordinary people who played a small if pious part in history and left few tangible remains behind them; as Samuel Eliot Morison had stated, "The insignificance of the Plymouth Colony in the colonial era is one [issue] upon which almost all American historians are agreed."[11] It was not their accomplishments that had so potent and persistent an effect on subsequent generations but the legends that grew up around them. Morison observed that the gulf between the popular and professional opinion on the role of the Pilgrims in American history could "best be stated by a paradox. Of slight importance in their own time, they are of great and increasing significance in our time, through the influence of their story on American folklore and tradition."[12] The "Pilgrim Story" was therefore less the product of serious history than it was of the heroic saga of the Pilgrims and their representation in art and literature.

If the goal had simply been to represent the old stories without regard for historical verisimilitude, creating Plimoth Plantation would not have been a problem. However, competition between historical accuracy and flag-waving became a central factor in the development of the new museum; tension between the demands of research and needs of tradition was built in from the start. Commenting on Morison's assessment, an uneasy Harry Hornblower recognized the problem such a dialectic might raise: "The difficulty of the Pilgrim Story is that there are really two stories–a true historical one and a romantic one."[13] Hornblower sincerely hoped the two could coexist, as he saw them to be of equivalent importance.

The debate about whether the first Pilgrim houses were log cabins exemplified the difficulty in balancing the romantic with the historical (fig. 2). Ever since William Henry Harrison had demonstrated his common origin by having been born in a humble log cabin, the cabin represented pioneer vir-

tue and an honest simplicity of character in American politics. Such a stereotype was so close to the Pilgrim story that the log cabin had became an unquestioned part of the Pilgrim image during the nineteenth century. The two symbols–the Pilgrims' moral virtue and the pioneer log cabin's association with humble birth and the absence of luxury and urban sophistication–enhanced each other. A thatched log cabin was accordingly built on Leyden Street in Plymouth for the 1921 Pilgrim Tercentenary. However, more serious research suggested that the Pilgrim log cabin was anachronistic.[14] When George Francis Dow designed the Pioneer Village for the Massachusetts Tercentenary in 1930, he constructed "sod-roofed dugouts . . . bark-covered wigwams . . . pine cottages, thatched-roofs, with catted chimneys of logs and clay and deep fireplaces, typical of the homes [the colonists] left in England" rather than log cabins.[15] The argument against the old belief was most fully developed by Harold R. Shurtleff, whose *Log Cabin Myth* Morison posthumously edited for publication in 1939. Having found no evidence that log construction had existed in early New England, Shurtleff argued cogently that the Pilgrims had no knowledge of the technique; log construction, he asserted, had in fact been introduced by Scandinavian colonists in the mid-Atlantic region decades after Plymouth Colony was established. "No early English settlement in America has preserved so many sources in proportion to its size and importance, or has been the object of such careful and intensive study, as the colony of the Pilgrim Fathers at Plymouth," Shurtleff wrote. "And in none, not even Massachusetts Bay, is evidence of log construction so completely wanting, or that of frame construction so abundant."[16] But the ingrained assumption that the Pilgrims had log houses was not so easily dislodged. Guy Allison, a Californian antiquarian who debated the issue with Charles Strickland, ignored Shurtleff's historical evidence and asserted that the Pilgrms could easily have invented log building under the pressure of the circumstances, and that they couldn't possibly have had time to build timber and board houses.[17]

Despite such objections, Sidney Strickland and his son Charles conceived their designs for Plimoth Plantation in the spirit of Dow and Shurtleff.[18] The Stricklands had a long association with the historic architecture of Plymouth. They not only carried out restorations of the Richard Sparrow House (attrib. 1640) in 1936 and the Jabez Howland House (ca. 1667) in 1940-41, but they also conducted archaeological excavations of the John Howland site at Rocky Nook in Kingston, Massachusetts, in 1937. The Stricklands had worked on a design of Plymouth's 1622 fort-meetinghouse in 1938 and conceived the idea of building an interpretation of the first Pilgrim house as early as 1939. By the time the Plimoth Plantation project was proposed, the Stricklands had already developed basic premises of early Plymouth architecture from their restoration and archaeological experience:

• The Pilgrim structures were not log cabins, as popularly assumed, but rather timber framed after traditional English patterns.

• Based on the endemic vertical board siding found in later southeastern New England houses, they were one story or story-

and-a-half single-bay thatched houses covered with a cladding of vertical sawn planks pegged to the plates and girts.[19]

• Based on evidence from the Howland site and on later stone-walled Rhode Island "firerooms," they had generous fieldstone chimneys and fireplaces (occupying on occasion almost the entire end of the building).[20]

• They did not feature infilling between the studding, such as daub or brick nogging. The vertical boards, with their interstices daubed with clay and perhaps covered with clapboards, constituted the entire wall.

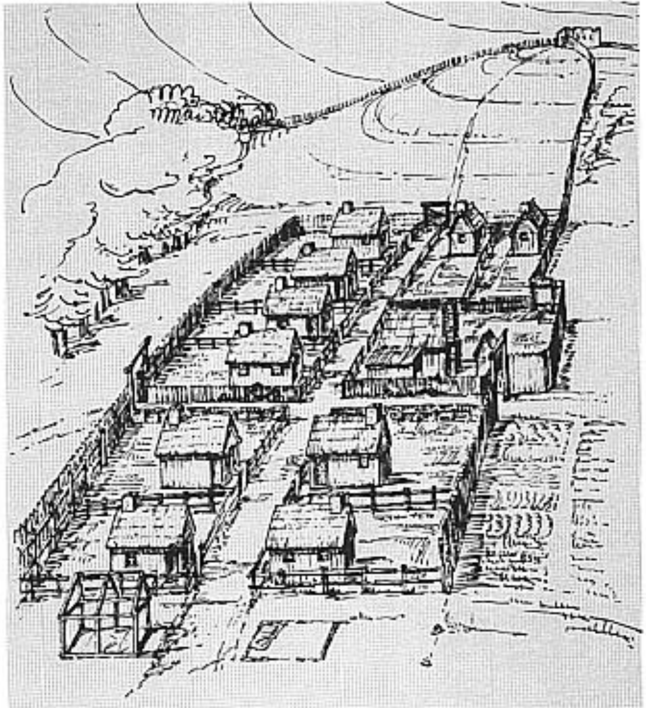


Fig. 3. *This 1948 drawing depicts Strickland and Strickland's conception of the original Plymouth settlement.*

• Most were fitted out with board floors, board doors, sliding window shutters, leaded glass or oiled linen windows, half-lofts, ladders to the lofts, and unpeeled log rafters.

• The fort/meetinghouse was designed literally according to seventeenth- century documentary evidence describing a "blockhouse" with a flat roof and battlements.

• The palisade was made of peeled cedar logs six inches in diameter and ten and a half feet long set in an eighteen-inch trench. Its plan, apparently derived from a nineteenth-century interpretation, was an internal irregular rectangle flanked by a tangential wall to the west.[21]

Charles Strickland asserted that "these first buildings were covered on the outside by sawn planks set vertically and hung with pegs to the frame, the joints being filled with clay daubing, and they had thatched roofs. The Pilgrims, we are convinced, did not build log cabins."[22]

The 1948 prospectus for the new museum depicted the Strickland plans for a "1623 Pilgrim Village" to be erected on a site on Warren Avene in Plymouth just north of the Plymouth Country Club (fig. 3). This property was about three miles south of the original site at the junction of Main Street and Leyden Street, which was the center of modern Plymouth. The prospectus called for the Pilgrim Village (ten "typical" houses and a fort within a palisade), a grist mill, an "Indian Village" (four huts and a fence), an archaeological exhibit center, and a "Trading Post" sales building. The Stricklands estimated the cost of the village project at $171,000; with the property and cost of the furnishings

they anticipated it to reach $250,000. The architects' plans also included a proposal for a replica of the *Mayflower*, a later generic "Village Green" possibly made up of salvaged original buildings after the Old Sturbridge Village model, and an amphitheater for pageants. The total fund-raising goal for the project was $1,500,000.

The first step in the creation of the museum was the construction on the Plymouth waterfront of the First House, an example of a "Pilgrim dwelling" intended to serve as an "information center for tourists and as a method of explaining the Corporation's plans for the future" and to measure visitor interest and reaction to the project (fig. 4). The First House was built for $3,771 in the autumn of 1948 and opened to the public on May 15, 1949. The design of the First House, which would serve as the model for the simpler Pilgrim Village houses, incorporated vertical board cladding pegged to an oaken frame on a stone sill, oil-paper windows with sliding shutters, a large fieldstone fireplace (with cement mortar playing the part of clay), a timber and daub chimney, a sand floor, a "sleeping" loft, and an inexpertly thatched roof.[23] Contractor William Kellar began construction of the second Plimoth Plantation building, a recreated fort-meetinghouse, on April 11, 1953 (fig. 5). Built just south of Plymouth Rock, it was dedicated in a televised ceremony on June 27, 1953.

The design for the fort-meetinghouse

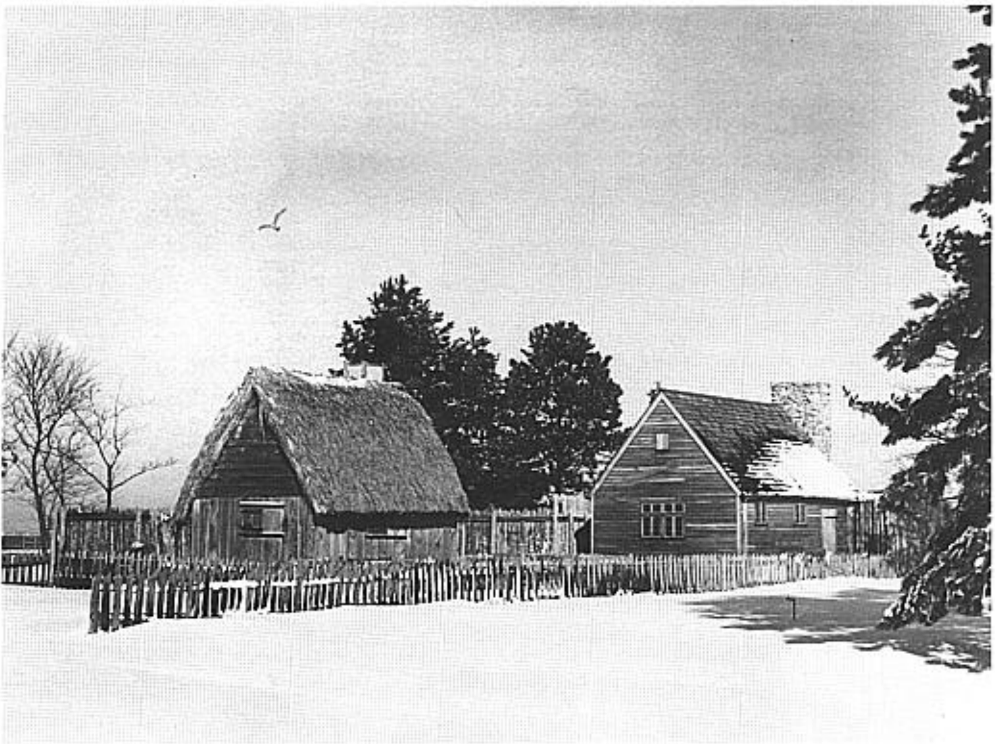


Fig. 4. *To generate and measure interest in the idea of creating the plantation, the corporation built the "First House" on the Plymouth waterfront in 1948. It is shown in this 1960 photograph next to the 1627 House, built five years earlier and used as a gift shop. Both stood on Water Street next to Plymouth Rock. The First House was demolished in 1990.*

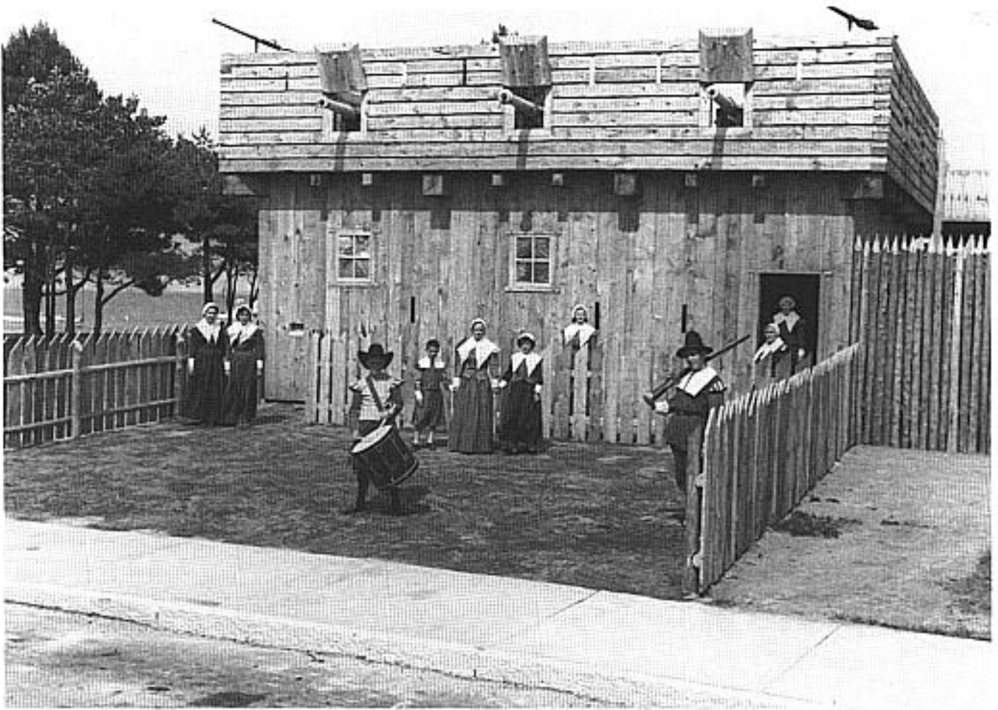


Fig. 5. *In 1953, the Plantation's fort-meetinghouse on the waterfront became the site's second building. Costumed interpreters posed in front of the building in 1957, a year before it was moved to the Eel River site. It was razed in 1985.*

presented different problems from that of the small dwelling houses. A 1627 account by Isaack de Rasière was the only indication of its design: "Upon the hill they have a large square house, with a flat roof, built of thick sawn planks stayed with oak beams, upon the top of which they have six cannon. . . . The lower part they use for their church, where they preach on Sundays."[24]

The Strickland plan for the Plantation's fort-meetinghouse included the assumptions that "the design of the Fort was carried out by Myles Standish who would have a professional soldier's knowledge of fortification. The construction would also have been influenced by those acquainted with ship building. It was assumed that the fort formed one corner of the palisadoed [*sic*] area with three walls outside the palisado to afford maximum field of fire."[25] Strickland arbitrarily chose the size of thirty feet square, "large enough to accommodate the Pilgrims for their meetings and not too large to be built hurriedly." Following the de Rasière account, the Strickland plan specified a heavy oak frame on which thick vertical pine planks were to be hung with trunnels or pegs. "This oak frame consisted of a sill set on rocks on the ground from which were raised corner, intermediate and center posts that supported the plate, two summer and two cross beams and the deck joists and diagonal or 'dragon' beams. The vertical members were further strengthened by an intermediate horizontal member between the sill and the plate and by corner braces. The deck joists extended out over the plate to form a cantilever to support the battle-

ments."[26] The fort-meetinghouse was built with a cement floor and an extra door leading to a modern pine exterior stairway to allow visitors to visit the gun deck, which they could not have done by means of the ladder and central smoke hole/hatch.

The last structure built near Plymouth Rock before Plimoth Plantation began to materialize on its present site was the 1627 House. This structure represented, Strickland wrote,

> an example of the type of house which the Pilgrims built when many families moved from the palisadoed town to start their own plantations according to the division of lots that year. . . . The 1627 period house shows the improvements which were possible with more time available, better equipment at hand and more experienced workmanship. The invaluable information used was the direct result of the archaeological excavations carried out at the Aptuxet Trading Post at Bourne, the Plantation House of John Howland at Rocky Nook, the R.M. Site at Chiltonville and the Winslow Plantation at Marshfield. . . . In essence these later houses were longer and had a heavy hewn oak frame supporting plank walls and a sawn and hewn frame . . . the plank walls were protected . . . by clapboards . . . and the roofs of heavy boards . . . covered with rough shakes or shingles. Window openings were slightly larger and had diamond paned glass in lead quarles and hinged as casements. Usually one end was almost entirely taken up with a huge stone chimney and fireplace.[27]

The 1627 House was intended for commercial rather than interpretive use and greatly resembled the "Trading Post" shown in the 1948 prospectus. When Strickland and Strickland drew up revised plans for the new Eel River Pilgrim Village site in 1956, the house designs were all variations on one or the other of the two waterfront houses.

Creating The Pilgrim Village, 1957–1965

The property the Pilgrim Society acquired in 1947 near the Plymouth Country Club became unusable after the state put a highway access road through it, but a bequest from Harry Hornblower's grandmother provided a very suitable piece of property a few hundred yards away from the first site on the north bank of the Eel River. Once the new Eel River site had become a reality in December 1955, the Stricklands were commissioned to develop plans for Pilgrim and Indian villages on that property.

On May 22, 1956, Charles Strickland presented his revised plans for the new site, which included a berth for the new *Mayflower* and a grist mill on the river (figs. 6 and 7). The fort-meetinghouse was to be relocated from the downtown waterfront location, and thirteen dwellings, six other structures, the trading post, and a reception center were to be built on the site. Nineteen lots on which houses were marked out were shown on the "First Street." On May 4, 1957, in a ceremony at the new Pilgrim Village site, Harry Hornblower maneuvered a large bulldozer to break ground for the first houses. Local contractor John W. Kellar installed stone foundations for four village houses (Bradford, Brewster, Howland, and Warren) by August 1957. The houses were completed and dedicated and the fort-meetinghouse moved from the waterfront in 1958. In 1959 the Fuller house was built, as was the first native

Wampanoag dwelling, a bark-covered "wigwam." The wigwam was designed and constructed under the supervision of James J. F. Deetz, who was then a doctoral candidate in anthropology at Harvard. He was hired on a permanent basis as staff archaeologist after graduating in 1960 and became assistant director in 1967.

The Pilgrim Village was intentionally a *partial* recreation of the Plymouth settlement as it was before the land division of January 1627/28, after which the population spread beyond the initial settlement. The number of buildings (twenty) was chosen in 1956 as a practical limit to the museum's capacity to maintain the exhibit.[28] The original settlement is documented to have had between twenty and thirty-two houses and four common houses before the November 5, 1623, fire, which destroyed between three and seven buildings. It was also documented to have supported about fifty families in October 1627, which would indicate a larger number of buildings. The recreation has fourteen dwellings, three common storehouses, a fort that also serves as the meetinghouse, and a few animal houses within a pale or palisade.

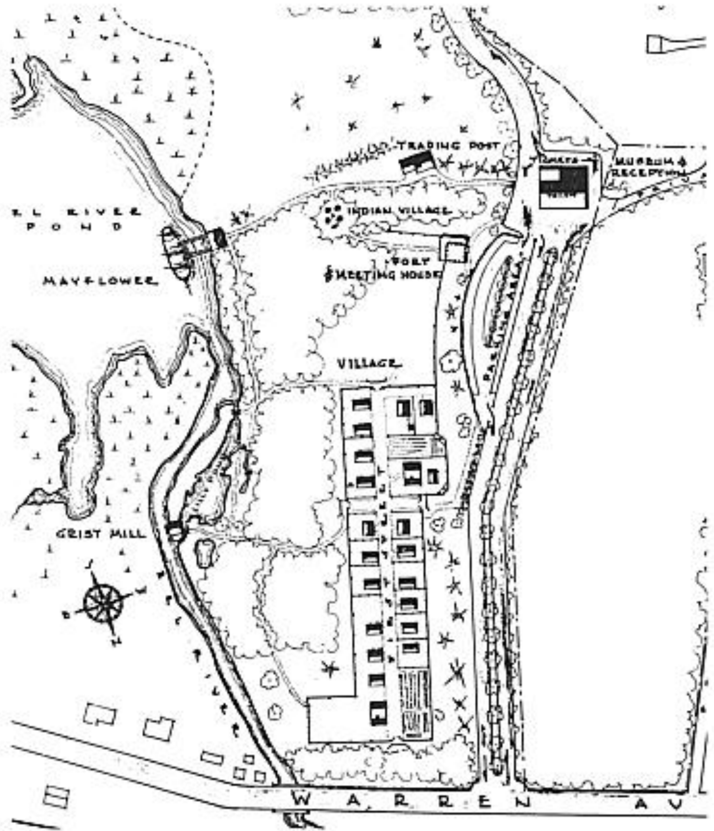


Fig. 6. *Charles Strickland's Plimoth Plantation plan of 1956 shows it on the Hornblower property, donated for the village late in 1955.*

The layout of the site was derived from two separate sources of information. The house lots distributed in 1621 on the southern side of the first street (now Leyden Street) were recorded on a small map that had survived among the colonial deeds; the northern side of the street had been left blank on the map. However, while almost all of the southern lots were absorbed into the property of Samuel Cole by 1637, many of the northern lots survived as individual properties after the recording of deeds began in the 1630s. A workable pattern of settlement and ownership can be postulated by these means. The primary problem was to align the two sides of the street, as there is no clear connection between the two lines of lots. The

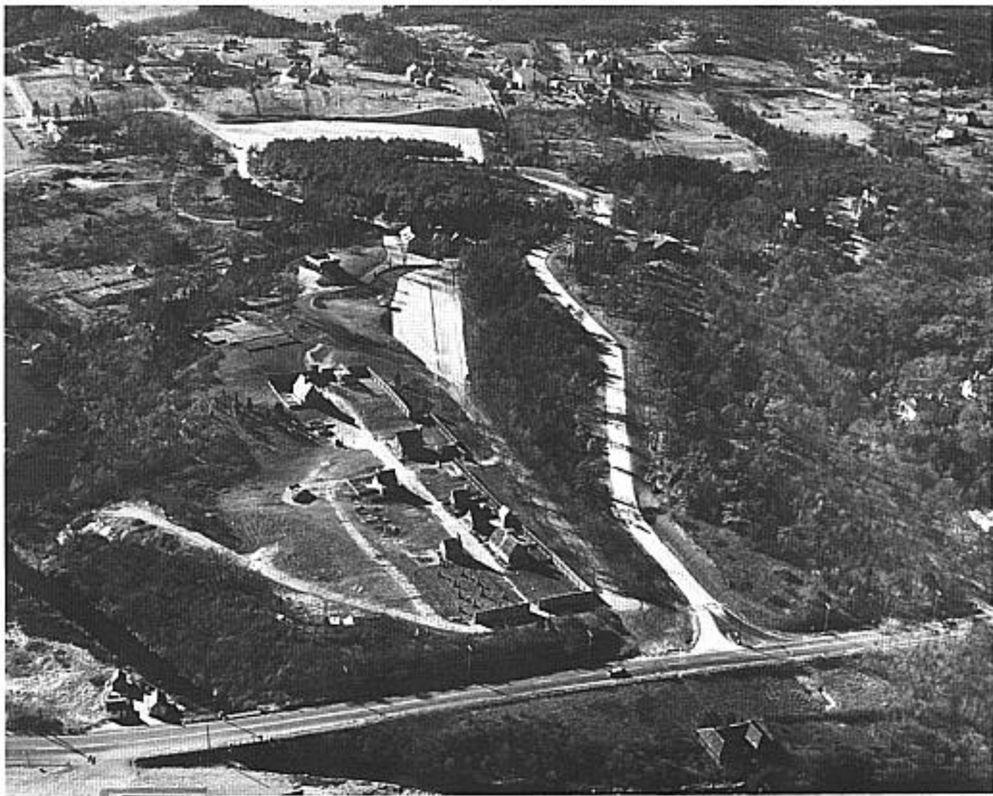


Fig. 7. *Photographed five years after work on the site began, the village then included (from left) the first Indian* wetu *(just below the flagpole), the first fort-meetinghouse, a sawpit, the first section of the palisade, and the Bradford, Brewster (on the left side of the street), Howland, Fuller, and Warren houses. Photograph by Eastern Aerial Surveys, Inc., Boston.*

Stricklands, following earlier theories, arranged the two sides with a perpendicular crossroads at the center in a simple symmetrical pattern.[29]

To achieve the visual appearance called for in the Strickland plans, the contractor used modern construction methods and, to some extent, modern materials in building the first Plimoth Plantation houses. Boards and timbers were sawn, and some of the timbers were then hacked to impart a "primitive" finish. Kellar substituted cement for the ostensibly original clay mortar in assembling large fieldstone chimneys and foundations. Wherever they were not supposed to show, tar paper, screws and wire nails, lead flashing, machine-sawn boards, modern two-by-four-inch and four-by-four-inch timbers, and cinder blocks were used. The overall effect was acceptable as an exhibit at the time, although the criteria did not measure up to preservationist standards and became one of the reasons for later modification.

In 1959 the Plantation adopted a picture of the village entitled "An Autumn Idyll" as a representative image of the project and reproduced it on everything from framed prints to gummed labels (fig. 8). "An Autumn Idyll" showed how its creators envisioned Plimoth Plantation–a clean, almost

Spartan village panorama showing the first five houses, a man pulling on a sheaf of corn in the foreground, and a few neatly attired people on the street. "An Autumn Idyll" reflects the clean lines and uncluttered elegance that characterized Colonial Williamsburg's role as monument to the early twentieth century's utopian impression of a serene and leisurely past, a suburban contrast to the modern rat race that was not coincidental. Seven other houses were added in the 1960s, so that by 1966 directors and staff felt the Pilgrim Village was adequately represented through its recreation.[30]

The Carson-Candee Reforms, 1965 - 1972

In 1965, the 1627 Pilgrim Village included the fort-meetinghouse moved from the waterfront, a "common house," and seven dwellings. Three more houses were under construction. A partially completed rectangular palisade of round cedar poles marked the northern and western boundaries of the site. Up to this time, the progress of village construction had been thoroughly based on the Strickland plans and the assumptions under which the Plantation had been founded. This consensus collapsed as new research raised serious questions about the earlier designs.

Fig. 8. *"An Autumn Idyll" captured how the Plantation's creators saw the village and was reproduced as a postcard, a gummed label, and as a print for members. Note the suburban split-rail fences and foundation plantings in front of the Warren House at right.*

In August, the board of trustees approved a plan for a staff committee to "review and re-evaluate [Plimoth Plantation's] entire program–what it has done, is doing and intends to do." Cary Carson and Richard Candee were hired to survey the architecture of the Pilgrim Village in the light of current research.[31] Given that the study of vernacular architecture was a new area of expertise and that reliable research on such structures was a relatively recent accomplishment, the report Carson and Candee produced termed it "remarkable that the present Pilgrim Village is as convincing as it is."[32] The two then proposed a rectified plan for a prototypical Plymouth Colony house that embodied their improvements on the Strickland work. Among the elements to be changed or discarded were the large stone chimneys and the high fireplace lintel. Charles Strickland could offer no convincing evidence that such chimneys were plausible in the 1620s, and the lintel seemed too high especially when the summer beam was mortised into it.[33] They rejected the crushed gravel floors and argued for a preponderance of board floors. "In New England's virgin forests," they wrote, ". . . restraints [on the use of timber] were so much relaxed that not only are references to boarded floors in dwelling houses commonplace, but one even finds them in outbuildings."[34] The intentionally rough-hewn surfaces and split log joists did "not reflect the 'primitive conditions' of life in early America, but rather the fuzzy thinking and shabby workmanship of our own era."[35] Similarly, the consultants advised changes in the horizontal wall rails, the beveled-edge vertical boarding, the horizontal gable boards, and the size, number, and use of glass in the windows. The Hopkins house was erected in 1967 as a model incorporating the revised architectural standards of the Carson-Candee report and hailed as the most accurate structure in the village.[36]

In 1969, the original palisade design that had been inherited from Edwardian illustrators was revisited as well. Assistant Curator Richard Humphrey proposed a new diaper-shaped design based on more appropriate historical models and known principles of period fortification (fig. 9). However, despite very clear descriptions that placed the fort-meetinghouse within the palisade, the Humphrey plan retained the Strickland idea of using the structure as a exterior bastion. The fort-meetinghouse was moved closer to the village and fitted into the new palisade when the latter was completed in 1974.[37]

Another house erected at this time turned out to be a clear failure in design. In 1970 students of the Nashoba Technical High School erected the Eaton house, whose foundation had been laid in 1964. For some undocumented reason, the students beveled the vertical boards to make them overlap and built the floor several feet above the ground (and foundation). The result was that the walls warped badly and the floor had to be removed, thus rendering the house unusable. Never opened to the public, the building was eventually weatherboarded, designated a "storehouse," and reserved as a staff facility.[38]

The Glassie Revolution, 1973-1982

In retrospect, the modifications the Carson-Candee report introduced into the 1956 Strickland plan were fairly modest. The half-lofts became full lofts, the windows fewer and

smaller, the stone chimneys replaced with ones made with an artificial cement daub, and some details in the framing–such the omission of a superfluous stringer and avoiding the intentional "quaintness" of rough workmanship–modified. Not until the 1973 design of the Billington I house by Henry Glassie, then a doctoral candidate in folklore specializing in material culture at the University of Pennsylvania, was the decisive break made with the Strickland period. In 1972 Deetz, the Plantation's assistant director, conducted an archaeological excavation of the 1630 Allerton site in North Plymouth, which had been accidentally discovered on a construction site. It turned out to be a posthole-type house, with a seven-by-three-foot cobbled hearth at one end and four eighteen-inch-square posts at each corner of a twenty-by-twenty-two-foot rectangular footprint.[39] Glassie added information from a number of new studies of vernacular architecture in the Virginia Tidewater and in the Ulster Plantations in Northern Ireland and England to the data from the Allerton site to devise an improved first-period house plan.[40]

Glassie pointed out that the Strickland designs essentially took a later seventeenth-century two bay/room New England house, cut it in half, and used the remainder to represent a single-bay dwelling. All of the structural details reflected later New England houses. Even the half loft was simply a later New England floor cut in half, "hanging out in the air for no reason in the world."[41] Glassie intended to recreate a one-room house built as a one-room house from the beginning. The result was a new prototype for Plantation construction. The new house style was of timber-framed, sill-less posthole construction, with wattle and daub panels between the vertical studding. The earlier houses were all silled frames built on stone foundations. The cladding was riven rather than sawn clapboards nailed to the studs between the posts. The corner posts were sunk four feet into the ground, while the vertical studs, which were set on roughly three-foot centers between them, were only inset a few inches into the ground. The studs were either pierced (as in Billington I) or grooved (in Allerton I) on the inner sides to hold wattle sticks for the clay daub panels. Strickland had rejected the traditional English use of daub

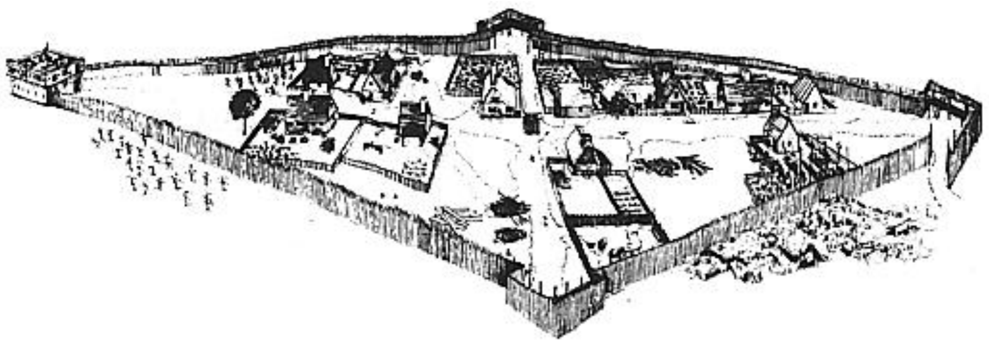


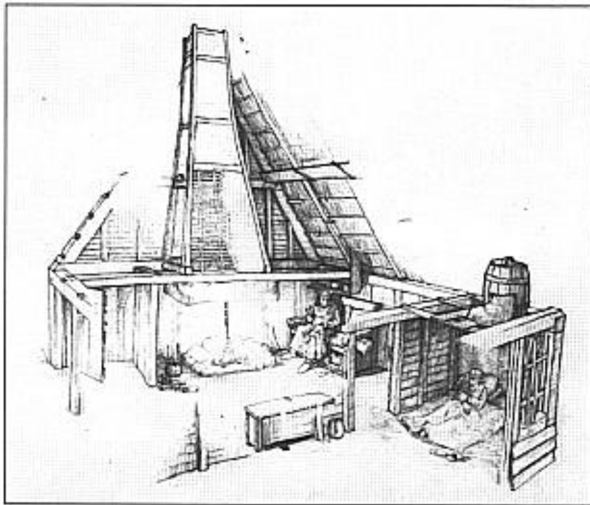
Fig. 9. *The new plan for the palisade proposed by Richard Humphrey in 1969 saw the fortification as symmetrical.*

panels, which he said were "not suited to New England's harsh climate"; as corroboration he cited the February 1621 storm that caused such panels to wash away.[42] He did, however, use clay to fill seams between his vertical cladding. A framed daub chimney and smokehood was set over an open cobbled hearth, with a large rock embedded in the wall behind it, a considerable contrast to the Strickland's fieldstone fireplaces and massive chimneys. Glassie had a "spear" (baffle wall) placed between the entry and the fireplace, which was no longer opposite the door; the other side of the fireplace was open up to the hood. There were fewer (no more than two) and smaller (eight- to ten-inch-square) windows, each with two vertical mullions. The framing and jointing was simplified considerably from the earlier houses, and there were no sheds or additions to the main frame. The floors were made of tamped clay, and the six-foot height from floor to plate was in contrast to the seven-and-a-half-foot heights in the earlier houses.

The first house built to these specifications was the fifteen-by-fifteen-and-a-half-foot Billington I in 1974. Determinedly simple in its construction, the little Billington house stood out from the other houses. With the exception of some artificial material to keep the inner chimney daub in place, the construction was done entirely with original materials and using original methods, although modern tools were used in behind-the-scenes preparation. It was intended to be as much an experiment in period building techniques as a part of the overall Pilgrim Village exhibit. Dark, cramped, with a fire on a dirt floor, the new house was convincingly evocative of the past in a manner that was not true of the airy, bright, and clean Strickland houses (figs. 10 and 11). In 1975 construction began on a second structure on the same pattern, the Allerton I house. Billington I also had a subdivided interior space, with a clapboard partition making two rooms in the single bay.

The introduction of such radically different architectural interpretations produced a structural dissonance within the exhibit. The differences between the Glassie and Strickland houses, although more apparent to the staff than to the visitors, inspired difficult questions about the discredited stone chimneys or the large empty windows (the earlier glass sashes or oiled cloth having been removed). While these problems could be interpreted (before the introduction of the first-person method in 1978) as the evolution of historical knowledge about early architecture to visitors who were interested in such subtleties, more people would leave unconsciously convinced that all these styles were equally representative of seventeenth-century Plymouth.

The long-term plan called for the replacement of the older structures, but Plantation management decided for financial reasons to rely on temporizing cosmetic changes in the meantime. The replacement or disguise of the stone chimneys, windows, sawn clapboards, and other details began in 1980 in the Brewster, Howland, Soule, and Fuller houses. Some chimneys were removed, others partially removed and masked. Removing the chimneys left gaps that resulted in outsized and ineffective timber flues. In 1986 the removal of the large central chimney mass from the Winslow house left a particularly difficult gap to deal with. The



Figs. 10 and 11. *By the 1970s, understanding of period construction techniques had created an entirely different feeling in Plantation interiors. Dwellings built earlier, such as the Bradford House (at top, photographed in 1963) were light-filled and spacious compared to those built in the Glassie era, such as Billington I. Shown in Glassie's cutaway drawing of 1973, the interior was lit only by a single, foot-square window and the door.*

simplest course–interpreting the gap as a "smoke bay"–was implemented by default. However, the spurious smoke bay was ineffectual in allowing the smoke out, and that one of the largest and most elaborate houses in the village was fitted with a primitive smoke bay while all the other houses, down to the smallest hovel, had chimneys, was an insupportable inconsistency. The sawn clapboards were replaced with riven ones, but the vertical siding and incorrect timbering on the inner side had to be hidden behind panels of "portland daub"–whitewashed cement supported by wire lath. The shingled roofs were slowly converted to thatch. However, the overall effect as far as it went was good, and the village began to show some internal consistency.

The need to replace less accurate older buildings was enhanced by the ravages of time. The first fort-meetinghouse had seriously deteriorated by 1980, as much the result of its design as of any other reason. Almost from its installation the flat fort deck had leaked badly, and rot had flourished.[43] Efforts to alleviate the rot–ranging from caulking the deck seams to bowing the deck surface by raising the supporting posts to promote runoff–proved inadequate. The design for the fort-meetinghouse proved to be a particularly difficult problem. J. T. Smith of the British Royal Commission on Historic Monuments told Plantation researchers that there was simply no applicable period precedent for a wooden fort of this type. The design was therefore contrived from other strong wooden structures familiar to the Pilgrims such as granaries or hunting lodges like the "Great Standing" in Epping Forest in Essex, England. The

most important determination was that a "flat" roof in seventeenth-century England referred to a low pediment pitch rather than a literally flat one.[44] The new structure was built in 1986 based on research by research director James Baker and associate curator Rob Tarule and plans by Jack Sobon from drawings by Richard Harris of Weald and Downland Museum, Sussex. The design was conjectural and differed considerably from the old Strickland version–and it didn't leak (fig. 12).

Both Billington I and Allerton I had to be demolished (in 1987 and 1993) once their red oak corner posts had rotted to the extent that the houses threatened to collapse under the weight of the roofs and chimney masses.[45] They had served their purpose as experiments and as inspiration to the use of more authentic materials and construction techniques. Plimoth Plantation was now committed to as thorough a program of accurate historical construction as possible. But what exactly was a fully accurate period recreation?

Post-Glassie Construction, 1982-1992

The Glassie style was soon subjected to the same critical examination as the Strickland designs had been. When the Strickland Alden I house burned in October 1976, its replacement was designed on the Glassie model. However, before it was finished in 1983, Deetz had left the staff and curatorial personnel had changed. Critical of the Billington/Allerton design, curators Peter Cook and Rob Tarule, who had been hired from the 1980 reconstruction of the Dedham Fairbanks House project on Boston Common, changed it in midconstruction. Logs with a straight grain suitable for splitting could not be found in time, so no clapboard was ready when the newly installed daub panels had to be protected from washing away. Beaded weatherboarding was used as a stopgap measure. Instead of a daub chimney and hearth, Tarule and other staff decided that a separate smoke bay would be preferable because it was more primitive than a standard chimney bay. As the house had not been originally framed with this in mind, the subsequent cobbled result was less than satisfactory architecturally and also ineffectual for smoke removal.

Other modifications to the Glassie model were incorporated in the first planned replacement of a Strickland house, Cooke I, in 1986. Based on some of the "long house" characteristics found archaeologically in Duxbury at the Standish and Alden sites, Cooke II presented yet another variant of village architecture. The house drew on the plan of an earthfast carriage shed surviving in White Roding, Essex, and avoided the excessively heavy timbering and elaborate joinery used in the earlier Glassie houses.

The rush to change and improve, however, pointed up the need for a more disciplined plan that would determine the final appearance of the 1627 Pilgrim Village. There had not been a unified vision of how or why the village houses should be constructed since Strickland's time. Each building was treated independently of an overall interpretation of the 1627 community and often without regard to whether Plymouth or New England evidence (as opposed to that of Holland or England) supported such a structure. Instead, each new house carried with it new ideas and conflicting interpretations of construction and design. Such arbitrary and conflicting changes could as easily compromise the

interpretive integrity of the site as emend it. Undocumented buildings such as large communal barns and European "hovels" were introduced, which, while well designed and reasonably accurate in themselves, were inappropriate in a recreation of 1627 Plymouth Colony. Researched and designed by Dell Upton, a graduate student at Brown University, work on a communal Pilgrim Village barn began in 1976 with a grant from the Coe Foundation. Although no mention of a community barn existed in the records, Deetz and Upton argued that one of the four storehouses put up the first year, or even an entirely unrecorded public structure, might have served as a barn for the storage of field crops. However, the design for the barn was developed from one of the largest barns known to have existed in seventeenth-century New England, the Robert Keayne barn at Rumney Marsh (Chelsea), rather than from a more modest building consistent with historical plausibility. The frame was completed in 1980 but the problem of thatching the seventy-two-by-twenty-six-foot structure brought the project to a halt. After considerable debate, Plantation director David K. Case and assistant director Richard H. Ehrlich decided that the inappropriateness of such a barn as well as the modern economic impossibility of thatching it had rendered the project infeasible. The barn project was discontinued and the huge frame dismantled.[46]

Built between 1987 and 1992, the three new dwelling houses (Billington II, Annable, and Browne) were professional, solid interpretations of seventeenth-century structures, but the first two were not entirely suitable as

Fig. 12. *This 1988 view of the western end of First Street shows the Billington hovel at left, Allerton I behind it, Bradford I with its stone chimney at right, and the new fort-meetinghouse in the background.*

components in the depiction of 1627 Plymouth. They were excavated "hovels" of the sort found in Holland and elsewhere where timber was scarce–hardly a consideration in settlement-era New England (fig. 13). Although references to huts dug in to banks exist from Massachusetts Bay and New Amsterdam, the quite thorough primary accounts of first-period construction in Plymouth give no indication of their use here. In addition, they were not quickly-thrown-together temporary structures but so finely constructed in details of timbering and thatching that questions inevitably arose as to why these wonderful "roofs" (especially Billington II) had not been elevated on four simple corner posts like the other houses. The Browne house, by contrast, is a good recreation of a story-and-a-half dwelling and probably appropriate for the social status of the Browne family.

In 1988, curator Jeremy Bangs ordered the removal of the three remaining stone chimneys. The houses in which they had been built, Standish I, Warren, and Bradford, had been left out of earlier cosmetic efforts because of the difficulty of adapting them to the new designs. After the chimneys were removed, Standish was adapted fairly well, while Bradford lost a section of its north side to become an oddly tall, narrow structure. Warren had one of its two bays removed to get the chimney out, ironically becoming in the process a literal example of Glassie's criticism of the Strickland houses–that they were simply later New England structures halved.

In addition to the dwellings and larger public structures, appropriate outbuildings were also erected from time to time, such as a small temporary hovel (1983), a thatched cow house (1983), a "Dutch barn" (1990-91) built with help of Plymouth South High School, and a common storehouse (1985-86)–also based on the White Roding structure–built under a program with the Apponequet High School in Lakeville, Massachusetts.

Building For The Future, 1992-1995

In 1992, chief curator Elizabeth A. Lodge and chief historian James W. Baker began work on a comprehensive survey of the 1627 Pilgrim Village that would serve as the basis for a cohesive plan for the future of the recreation. The survey included the structures, artifacts, livestock, crops, and a demographic analysis of the Plymouth colony community. They were to review all available relevant research and search out new information as necessary; identify advisors from among the scholars working in the theoretical study of first-period New England architecture and its English precedents; establish a workable (and modifiable) model for the eventual recreation of the entire 1627 Village that would take into consideration the architectural variety and construction dates of each building; compile a report documenting the intellectual process behind each decision made in interpreting the evidence for tangible recreation, including how designs for "mean" and "fair" (the seventeenth-century terms for "standard" and "better") houses were derived; and institute a program of scheduled replacement for all of the village structures that would allow for eventual changes in design simultaneously with the periodic replacement of deteriorated elements.[47]

Lodge and Baker decided to replace at least one outmoded structure each year beginning in the 1992 season. They set up a

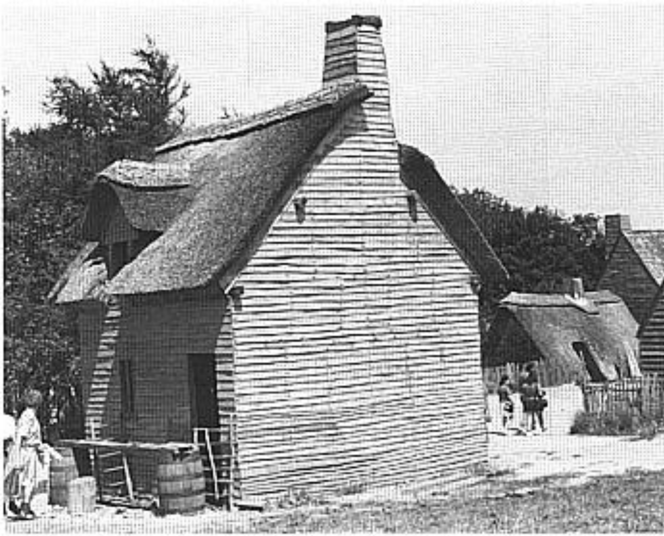


Fig. 13. *The new Browne house and the Annable hovel at right, built between 1987 and 1990, on the east end of First Street.*

original Plymouth settlement. Work began in 1987 but progressed very slowly until Lodge, newly promoted to chief curator, took charge of the project. The northwest curtain wall was finished in 1990, paling around the fort-meetinghouse was installed in 1992, and the northeastern curtain was added in 1993. In the winter of 1993-94, the eastern gate and battlement were replaced, and the new southwestern curtain wall was built in 1995, far more quickly and accurately than an earlier attempt a few years before. The final southeast segment was finished in February 1996.

preliminary advisory panel consisting of Abbott Lowell Cummings, Richard Candee, Christopher Hussey, Rob Tarule, and Myron Stachiw, and Plimoth Plantation submitted the project (unsuccessfully) for funding to the National Endowment for the Humanities. Standish I and the remaining segment of the Warren house were removed before the 1993 visitor season began, and work started on a new standard or "mean" house to represent the Standish dwelling.

The Humphrey palisade also needed replacement, one section having collapsed as long ago as 1975. Conforming the structure to Plymouth circumstances and topography, Bangs designed a new palisade after those around fortified towns in Ireland and at Albany, rather than after independent military forts. The uninterrupted defensive walls in the highly symmetrical design Humphrey had envisioned were quite inappropriate for the long double row of houses built on the irregular hillside of the

Working under manager Joel Pontz and lead artisan Pret Woodburn, a reorganized "artisan" department with responsibility for building and maintaining the structures worked in costume alongside role-playing interpreters to replace each older house, fence, and palisade section.[48] The artisans were trained in first-person interpretation and adopted the same role-playing method as the other staff members. Except for site preparation, such as removing old structures or digging the palisade trench, costumed artisans using reproduced period tools made on the site conducted the entire construction process from logs to house or palisade in front of the public. The old shortcuts, such as resurfacing a sawn timber or using a "chainsaw mill," have been dropped in favor of doing all the work by manual hewing or pitsawing.[49] Standish II was entirely constructed in front

of the public using the traditional scribe rule method of framing in August 1993 (fig. 14).[50] The Allerton II frame went up in August 1994, and in the winter of 1994-95 the Fuller I house was demolished and its replacement raised in August 1995.

Plimoth Plantation has come a long way toward realizing the original goal of bringing an interpretation of the seventeenth-century Pilgrim settlement to life. Experience has taught that the idealized designs and programmatic confidence of the Strickland years, while a good pioneering effort, could be improved upon as better research and building techniques were acquired. It has also taught that the Glassie approach of inspired interpretations and the thrill of archaeological discovery must be tempered by a systematic approach if the goal is to recreate a particular community at a very specific time. Following period designs with appropriate tools has taught the artisans enough about period construction techniques that they can survey surviving seventeenth-century houses with an experienced eye and can determine just how and why early builders did what they did. Plimoth Plantation intends to send artisans and researchers to England to survey contemporary structures for details and methods of construction that architects and historians would see differently and so greatly increase practical knowledge of period building techniques.

The Plantation management is now working on a new master plan for the development of the entire Eel River site. This plan will draw on the Lodge and Baker report to set specifications and schedules for the completion and regular replacement of all of the Pilgrim Village structures. A conjectural recreation such as the 1627 village can never attain a perfect steady state; the continuing quest for accuracy in the 1627 village will require the regular replacement (and revision) of all structures. The Plantation has assumed the responsibility to keep the recreated structures appropriate to their age (seven years or less) and as reflective of the best and most current research as possible.

The Plantation's open-ended, scientific model for research and recreation grew out of the struggle for self-definition through which the organization passed in the 1960s. The new, younger professional staff rejected the earlier consensus on presenting inspirational Pilgrim stories in the context of antiquarian social history. Historical romance and historical accu-

Fig. 14. *Standish II under construction, 1993; a section of the older Humphrey palisade is visible at upper left and the new palisade at upper right.*

racy were, despite Harry Hornblower's concern, judged incompatible. Revulsion against the subjectivity and romantic patriotism that characterized the old program forced a shift away from traditional interpretive and exhibi-

tion practices toward a more historically neutral living-history approach. Houses and artifacts held none of the problems posed by the culturally charged stories of the Pilgrim Fathers. However, as these traditional tales had been the motive force for the establishment of the Plantation in the first place, their devaluation resulted in a crisis of legitimacy. If the institution was not to promulgate the Pilgrim story, what was it to do?

The solution, arrived at in 1969, was to concentrate on the material culture of the early Plymouth colonists and leave the legendary Pilgrims to the popularizers and descendant societies. Program emphasis shifted from popular history to popular anthropology. During the 1970s, the Plantation's resources were largely allocated to replicating the tangible elements of colonial life–houses and gardens, and within them appropriate crafts and household activities. On the other hand, activities that recalled colonial stereotypes, such as candle dipping and spinning, were considered anachronistic and, like the stories, strictly avoided. While this avoided the "taint" of the Pilgrim myth, it also disappointed some visitors and alienated many of the original supporters of the Plantation project. Thus the new interpretation, however historically accurate, was not an entirely satisfactory replacement for the old popular history that had brought many visitors to the site. The aim was historical truth, but the often overconfident result lacked the humanity of the old stories.

In 1978 the Plantation began to turn this situation around, not by returning to a rapprochement with Pilgrim myth but by introducing first-person interpretation. First-person role playing is an effort to increase the verisimilitude of the living history program, to present the historical Plymouth community unmediated by obvious historical hindsight, and to avoid any reference to the Pilgrim story. An unforeseen result of this innovation was that it reinforced the need for an accurate and fully functional historical environment in which to interpret. Role players needed painstakingly accurate reproductions of the clothing, tools, and supplies of period individuals in order to maintain the fiction of representing the past. The inventions and shifts incumbent in first-person interpretation made the recreated setting all the more important as a supporting medium by which the impression of the past was strengthened and enhanced. Moreover, the costumed staff could no longer explain away errors or inadequacies in the exhibit, such as the stone chimneys, because they could not lapse from character. Thus everything had to be as correct as possible.

The striving after accuracy was also necessary to give the program a respectable level of educational integrity. Lacking objects and structures whose authenticity conferred historical legitimacy, the Plantation had to rely on reproductions. No reproduction is ever authentic; all that can be claimed for it is that it is an accurate copy. Plantation reproductions could only approach the legitimacy that authenticity creates by being as accurate as possible. As experience has shown, even the best designs and conceptions might in time be rendered obsolete. This humbling realization led to the Plantation's policy of historical skepticism and continual revision, and thus to the architectural research and experimentation that characterizes the site today.

James W. Baker, a native Plymouthean, is vice president and chief historian of Plimoth Plantation. He first worked at the plantation as a summer season guide from 1963 to 1966 while at Boston University and returned in 1975 as staff librarian.

Notes

A note on sources: Documentation for the behind-the-scenes decision-making at Plimoth Plantation is quite incomplete, especially after about 1970. Because of this, the author has been obliged to rely on his working recollections (1963-66; 1975-96) and those of other employees for the changes and decisions that occurred for the period after 1965 in particular.

1 Sydney V. James, ed., *Three Visitors to Early Plymouth* (Plymouth, Mass.: Plimoth Plantation, 1963), 24.

2 James Deetz, "A Sense of Another World: History Museums and Cultural Change," *Museum News* 58, 5 (May/June 1980): 44.

3 "As you know I have had in mind for a long time that a pioneer village development somewhere in Plymouth would be a great asset to the town if it could be done on a worthwhile scale and my archeological son in recent years has been further developing and crystallizing his own thoughts on the subject . . . It would be my intention to give the [Pilgrim] Society initially sufficient money to acquire an ample site together with enough additional free cash to pay for the preparation of plans for its further development." Plimoth Plantation Archives (hereafter cited as PPA); Ralph Hornblower to Ellis W. Brewster, Dec. 12, 1945. "The Pilgrim Village was first made possible by a gift made to the Pilgrim Society by a resident who felt it would also contribute to a renewed appreciation of the American system of free enterprise." *The Howland Quarterly* 13, 2 (October 1948): 4.

4 "Plimoth Plantation, Inc. has been organized to help present and preserve the magnificent heritage that the Pilgrim Fathers created for all present-day Americans. For a number of years many Plymouth residents have felt that the visitor to historic Plymouth has had little opportunity to appreciate the early development and far-reaching effects on the First Colony in New England, established as Plimoth Plantation by the Pilgrims in 1620." *The Pilgrim Memorial to be Erected in the Town of Plymouth, Massachusetts*. (Plymouth, Mass.: Plimoth Plantation, 1948), 7.

5 Memorandum from President Brewster to the Officers of the Pilgrim Society, Dec. 3, 1945, PPA.

6 Forefathers' Day is the annual commemoration of the landing of the Pilgrims at Plymouth in 1620 and has been celebrated in Plymouth and elsewhere since 1769. The Pilgrim Society changed the date for the event, originally set as December 22 in 1769, to December 21 in 1870.

7 Records of Plimoth Plantation, 1947-1955. The incorporators were Henry W. Barnes, Ellis W. Brewster, Walder J. Engstrom, Henry Hornblower II, Ralph Hornblower, George C. P. Olsson, and Lothrop Withington.

8 Typescript of talk delivered to the Newcomen Society by Harry Hornblower at Plimoth Plantation, June 23, 1967, 1.

9 "Our country needs such a living memorial to the founding fathers of 1620 who laid broad and deep the foundation for its liberty and its strength. Our people need to see with their own eyes how our Commonwealth was

cradled." Kenneth J. Conant, "Introduction," *The Pilgrim Memorial* (Plymouth: Plimoth Plantation, 1948), 4.

10 Harold E. Stassen, *Dedication Addresses by His Excellency Christian A. Herter and the Honorable Harold E. Stassen at Plimoth Plantation's First Fort and Meeting House, Plymouth, Mass. 27 June 1953* (Plymouth: Plimoth Plantation, 1953), 15.

11 Samuel Eliot Morison, *The Pilgrim Fathers, Their Significance in History* (Concord: Society of Mayflower Descendants in the State of New Hampshire, 1937), 3.

12 Morison, *The Pilgrim Fathers*, 3.

13 Harry Hornblower to Merton T. Goodrich, Dec. 5, 1950, PPA. Plimoth Plantation reprinted Morison's pamphlet in 1951.

14 George Francis Dow, *Domestic Life in New England in the Seventeenth Century* (Topsfield, Mass.: printed for the author, 1925), 3.

15 *The Pioneers' Village, Salem Massachusetts* (Salem, Mass.: Salem Park Department, ca. 1939), 3.

16 Harold R. Shurtleff, *The Log Cabin Myth* (Cambridge, Mass.: Harvard University Press, 1939), 110.

17 *Sunday Standard Times* (New Bedford, Mass.), Apr. 24, 1949, 11.

18 It appears evident that the Stricklands' conception of the Pilgrim Village was strongly influenced by Dow's Pioneer Village, but this is nowhere clearly admitted to in surviving materials. They had, however, corresponded with Shurtleff.

19 Richard M. Candee, "A Documentary History of Plymouth Colony Architecture, 1620-1700," *Old-Time New England* 60, 2 (October-December 1969): 40; Norman M. Isham and Albert F. Brown, *Early Rhode Island Houses* (Providence, R.I.: Preston and Rounds, 1895), 13-14.

20 "The houses which succeeded log huts did not differ from them in plan. They contained only a single room, the 'Fire Room', one end of which was almost entirely taken up by a huge stone chimney." Isham and Brown, *Early Rhode Island Houses*, 16.

21 This design, which appeared around 1900, was published in several places, including Charles Stedman Hanks, *Our Plymouth Forefathers* (Boston: Dana Estes and Co., 1907), 87. It depicts the palisade running west from the shore near Plymouth Rock to the fort and then south to Town Brook. I have been unable to discover who came up with the idea.

22 Charles R. Strickland, "Early Pilgrim Architecture at Plimoth Plantation 1620-1627" (Manuscript, PPA, 1956), 18. Among the works Strickland cited were C. F. Innocent, *The Development of English Building Constructions* (1916), Martin S. Briggs, *The Homes of the Pilgrim in England and America* (1932), Harold R. Shurtleff, *The Log Cabin Myth* (1939), and records from the Newfoundland and Virginia companies.

23 In 1989, the 1948 First House had deteriorated to the extent that it was demolished and replaced by the J. Barnes Bakeshop, a recreation of a commercial shop of the mid-seventeenth century. The intention was to have a working bakery on the waterfront, but the town of Plymouth rejected the proposal.

24 Isaak de Rasière to Samuel Blommaert (ca. 1628) in James, ed., *Three Visitors to Early Plymouth*, 76.

25 Strickland, "Early Plymouth Architecture," 47. Previous depictions of the fort in popular art showed a square log structure with straight sides and cannon protruding through crenulations at the top.

26 Ibid. It was assumed that the siding should be six inches thick, the planking for the deck four to six inches thick, and the latter caulked like a ship's deck. The battlement walls were horizontal timbers eight or ten inches thick.

27 Ibid., 52-53.

28 Buildings proposed for eventual construction in about 1965 included the fort-meetinghouse and the Bradford, Brewster, Howland, Fuller, Warren, Common, Standish, Cooke, Alden, Soule, Priest, Hopkins, Eaton, Snow, Allerton, Billington, J. Brewster, Prence, and Browne dwellings.

29 David Pulsifer, *Records of the Colony of New Plymouth Deeds, &c. 1620–1651* (Boston: Commonwealth of Massachusetts, 1861), 3; John A. Goodwin, *The Pilgrim Republic* (Boston: Houghton, Mifflin, 1899), 106; William T. Davis, *Ancient Landmarks of Plymouth* (Boston: Damrell and Upham, 1899), 162. Unfortunately, the historical crossroad was considerably offset, and the layout is still under debate.

30 The shingled roofed "timber chimney" Common House, the shingle-roofed double Winslow house (1960), which had a stone chimney and both clapboarding and vertical boarding, and the shingle-roofed, stone chimney, and clapboarded Standish house (1965). In 1964, the foundations for the Alden, Cooke, Soule, Eaton and Hopkins houses were laid.

31 The employment of two men for the survey was accidental, but it proved to be a very workable solution to the plantation's problem. Once the decision was made by the trustees (August 10, 1965) to review the Pilgrim Village architecture, the Plantation staff advertised for someone to do the survey. Richard Candee, a doctoral candidate in American Studies at the University of Pennsylvania, answered the ad and was hired by education director Arthur Pyle. Simultaneously, however, president Harry Hornblower hired Cary Carson, who was working on his doctorate at Harvard, for the same job. The two men agreed to collaborate on the project, with Candee pursuing the technical constructional details for Plymouth Colony architecture (on which he had published a paper in *Old-Time New England*) and Carson and his wife Barbara researching the English precedents for early Plymouth buildings.

32 Cary Carson and Richard S.Candee, *1966 Report on Plimoth Plantation Architecture* (Typescript, Plimoth Plantation, 1966), 1.

33 Cary Carson, "Suggested Changes in the Hopkins House Plans" (Typescript, PPA, July 31, 1967), 1.

34 Carson and Candee, *1966 Report*, 32.

35 Ibid., 18.

36 "Many new and exciting innovations have been made in the Village. The largest and most impressive is the new Hopkins House. This house is the result of the culmination of all our architectural research." *Plimoth Plantation Newsletter* 8, 1 (December 1968): 2.

37 "And whereas we have a hill called the Mount enclosed within our pale, under which our town is seated, we resolved to erect a fort theron." Edward Winslow, "Good Newes From New England" (London, 1624), quoted in Alexander Young, *Chronicles of the Pilgrim Fathers* (Boston: Little, Brown, 1844), 295. Richard V. Humphrey, "The Configuration of the Palisade Constructed at Plymouth during February and March, 1622" (Research report, Plimoth Plantation, July 1969).

38 Henry Glassie, "Talk to Interpreters"

(Transcription of question-and-answer session at Plimoth Plantation, Plymouth, Mass., June 26, 1973), 5.

39 Later archaeologists such as Douglas George and Mary Beaudry speculated later that there might have been more bays beyond the area uncovered.

40 Both the English settlements on the Chesapeake following the settlement at Jamestown in 1607 and the Ulster Plantations, which were English colonial settlements built in Northern Ireland after 1609, presented previous examples of English architecture taken abroad.

41 Glassie, "Talk to Interpreters," 13.

42 Charles R. Strickland, "The Architecture of Plimoth Plantation's Pilgrim Village" (Typescript, PPA, 1953), 6.

43 Reports of unsuccessful attempts to stop leaks in the fort/meetinghouse are found in the *Records of Plimoth Plantation, 1947-1955* as early as July 19, 1954.

44 James W. Baker, "This Summer they built a fort. . . ," *Fort/Meetinghouse Dedication, September 4, 1986* (Plymouth, Mass.: Plimoth Plantation, 1986), 2.

45 Three of the corner posts in Billington I were red oak and one was white oak. No one was aware at the time that red oak, which is now far more available in the Plymouth area than white, was also far more susceptible to rot because of its vascular quality. Oak, they thought, is oak. All of the posts used in Allerton I were red oak and rotted completely away below ground in twenty years.

46 Dell Upton, "Design for a Barn for Plimoth Plantation" (Research report, Plimoth Plantation, August 1974); Richard H. Ehrlich, "Staff Report: 17th Century Barn at Plimoth Plantation" (Research report, Plimoth Plantation, Jan. 20, 1981).

47 Elizabeth A. Lodge and James W. Baker, "Some Thoughts towards a General Plan for the Eventual Replacement of the Pilgrim Village" (Memorandum, Plimoth Plantation, Sept. 10, 1992).

48 Pontz, who hired as a costumed interpreter in June 1974, acquired his knowledge of house construction at Plimoth Plantation, while Woodburn, who had also begun as an interpreter, left for several years to work as a timber-frame builder.

49 A chainsaw mill is a large chainsaw that has been equipped with attached guides that will keep the cut straight and mimic the effect of the reciprocating saw apparatus in a seventeenth- or eighteenth-century sawmill.

50 Scribe rule framing is the traditional method of erecting house frames where the pieces are marked and place-fitted together by eye and individual adjustment rather than being cut to specific and interchangable measurements.