

THE HUDSON RIVER VALLEY REVIEW

Vol. 21, No. 1, Autumn 2004

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On the cover: Frederic Church’s Olana; photograph by Ted Spiegel.
Courtesy Hudson River Valley National Heritage Area



Figure 1
Court Street, 1686, pen and ink, drawing by Len Tantillo

*“Many new houses have lately been built in this city,
all in the modern style..”*

The Introduction of the Gambrel Roof to the Upper Hudson Valley

Walter Richard Wheeler

Despite their falling under the aegis of the English in the late seventeenth century, the people of the upper Hudson Valley continued to articulate their built environment using techniques and materials associated with the Dutch. The arrival of the gambrel roof, long popular in New England and possessing a powerful iconography, was precipitated by the construction of churches and public buildings by the British government during the first quarter of the eighteenth century. However, more than a generation passed before this type of roof became common to the domestic architecture of the region. Its later promulgation was directly connected to the arrival of a number of Boston carpenters during the French and Indian War. This paper will examine the influence of those builders on the local vernacular, and explore the spatial and temporal extents of the transformation that their work affected.

Introduction

I was attracted to the subject of this paper as the result of a study of regional vernaculars. It became clear during the course of this work that the “Dutch gambrel roof” had remarkably different provenance in different parts of the country—even within New York State. I have limited the subject to the upper Hudson Valley and in particular the region that was known as Albany County in the mid-eighteenth century.

In 1674, when the Dutch handed over control of their former colony to the English, European settlements in the upper Hudson Valley were largely comprised of small tenant farms and trading communities that also served as markets for agricultural products. The built culture was largely that of the Netherlands. In Albany, houses with spout or stepped gables predominated (Figure 1). The majority of the houses were constructed of wood, but most of those that survived into the era of photography were built using a composite structural system, in which a wood frame comprised of bents was encased in a brick wall. The roof structure of

these houses was arranged in parallel pairs of rafters, pegged at their apex and usually constructed without purlins (Figure 2). The gable ends were frequently decorated with *vlechtingen*, a term variously translated as “tumbling” or “braiding,” and popularly known as “mouse’s teeth” (Figure 3). This originally served a practical purpose, inasmuch as it minimized the exposure of mortar joints along the top surface of the wall. These structural details largely faded from use during the 1760s, but holdovers into the early decades of the nineteenth century are known. Using these details as a guide, it is possible to discern between the buildings constructed by carpenters and masons of Dutch cultural heritage and those with an English cultural background.



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Figure 2
The razing of the Bradt house, Schenectady, in the late nineteenth century. The bent system of framing is clearly seen in this view

Background

In the early seventeenth century, the city of Paris passed a law that taxed buildings according to their number of stories adjoining the public streets. In order to provide more living space without incurring tax penalties, attics began to affect “dormer” roofs.¹ French architect Francois Mansart (1598-1666) is said to have been responsible for this solution, but the fact that his name has been connected to it may be due to his introducing its application to state buildings in France. The term “mansard roof” has come to be synonymous with this type of roof, although in France they are known as *toit brisé*. The interconnected royal courts of the period were in part responsible for the quick dissemination of the roof type throughout Europe. One of the earliest German examples was the Pommersfelden, in Bamberg, Bavaria, by Johann Dientzenhofer (1711-1718).



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Figure 3
The south gable of the 1738 portion of the Lendeert Bronck house, Coxsackie, showing the *vlechtingen* (2002)

In Great Britain, a similar set of circumstances encouraged the development and spread of the kerb (curb) or gambrel roof, apparently independent of the mansard. A tax on windows

was enacted in 1695, initially to support a war with France, but it remained in effect until 1851. In response, windows everywhere were blocked up, and the gambrel roof was adopted. According to Francis Price, who wrote in the first part of the eighteenth century, it was also “much in use, on account of its giving so much room withinside...”² while minimizing the addition of windows.

The word gambrel comes from the old North French word *gamberel*, meaning a forked stick. It is also related to the old French word for leg—*gambe*.³ As adopted in England, the word referred to the bent portion of a horse’s hock, or back leg. Similarly, the term was first used to indicate the use of bent structural members, not necessarily (but usually) in the construction of roofs.

Structurally, these roofs are trusses supported on purlins. British architectural historian Bernard H. Johnson has said that gambrel roofs “do not appear on architect-designed buildings but are mostly confined to cottages and houses of lesser quality bearing the hallmarks of local craftsmen.” He has observed that the roof form is confined to East Anglia and South-East Britain.⁴ Johnson contrasts the gambrel with the mansard, which he says “belongs to polite architecture.”⁵ Although he cites some structural differences, his chief tool for discriminating between the two is his observation that the gambrel does not require flashing between the two slopes, and the mansard usually has dormer windows on its lower slope. By these standards, most American gambrel roofs are mansards. I’m going to avoid his classist argument and continue to refer to upper Hudson Valley examples as gambrels.

The Gambrel Roof in America

The earliest examples of the use of gambrel roofs in the American colonies were typically on government-sponsored buildings, including churches. The use of distinctly English forms had a homogenizing effect on colonial cultures, which tended to be diverse even from the beginning. Similar cultural hegemony had been exercised in the former Dutch colony by the Netherlands, and the people there held on to its signifiers long after the transfer of control to the British state.



Figure 4
**Building on the corner of Washington
and School streets, Boston (2002)**

Among the first gambrel roofs in America was Trinity church in New York, finished in 1698. The gambrel roof had gained sufficient currency in Boston by 1707 to be mentioned without further comment in building contracts submitted to the city. In these documents, they are usually described as “flatt” roofs, and the upper slope, being nearly flat, was usually encircled with an open balustrade and accessible via a scuttle.⁶

A number of gambrel-roofed houses of English form survive in New England (Figure 4). Similar examples in Maryland and Pennsylvania survive chiefly in former rural areas. Additional examples, all dating to the first quarter of the eighteenth century, can be found in Delaware. The earliest use of the gambrel roof in the upper Hudson Valley was on St. Peter’s Episcopal Church in Albany, constructed 1714-16 by Boston builder John Dunbar, who later moved to Schenectady. Dunbar may have been responsible for the design of Schenectady’s first gambrel-roofed building, the Dutch Reformed church of 1734 (Figure 5). Albany’s Dutch Reformed Church of 1715 was built with the consent of the Common Council and with financial support from the city. In contrast, city aldermen contemporaneously protested the construction of the English church and attempts were made to block its completion.⁷

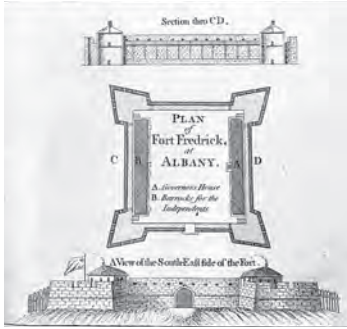
The construction of the New York and Albany English churches were turning points in the history of their respective communities inasmuch as they marked the establishment of a British cultural institution within the principal settlements of the former Dutch colony. The resistance of city leaders in Albany to the prominent siting of the English church there articulated their resistance to British cultural incursions into their community.

When Albany’s *Stadt Huis* (State House) was constructed beginning in 1740, Georgian forms were utilized, including a centrally disposed hall, a gable roof, and a cupola. After the establishment of a church, city hall, and the construction of a fort, the city of Albany once again settled into an ancillary role and was left largely on its own by the British. House forms constructed during the first five decades of the eigh-



SCHENECTADY COUNTY HISTORICAL SOCIETY

Figure 5
The Dutch Reformed church, Schenectady,
by J. Hall (c. 1835)



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AUTHOR'S PHOTO

Figure 6
“Plan of Fort Frederick at Albany”

Figure 7
The Philip Schuyler house, Albany (2002)

teenth century continued to follow the Dutch models of the previous century. A view of the 1730s depicts the city as overwhelmingly Dutch in its appearance.

The expansion of hostilities between the British and the French and Native Americans precipitated a new era of building in Albany and its environs during the 1750s. The upper Hudson Valley was used as a staging area for British troops, and thousands of soldiers were encamped in the suburbs of the City of Albany. The local economy benefited from the provisioning of troops, and after the cessation of hostilities in 1763 a number of soldiers remained in the area.

The work that was necessary to militarize the region was substantial, but much of it was undertaken by carpenters and builders from other locales. It was possibly a mistrust of the locals that led General John Bradstreet to retain Boston builders to accomplish this work, which included repairing and enlarging the forts at Albany and Schenectady in 1757 and the construction of a hospital and barracks at Albany. In so doing, Bradstreet extended a tradition begun in 1700, when Wolfgang Roemer came from Boston to Albany to design a new fort for the city.

Work on the fort and hospital was overseen by Captain John Montresor and authorized by Bradstreet. A section through the buildings located within the fort indicates that they had braced frames after the British tradition, unlike the bent system used by the Dutch (Figure 6). Payment for “all the New England carpenters employ’d by the Publick this way [during] this Campaign...under Mesiniers [Montresor?]” was sent by Bradstreet via courier to Boston the following year.⁸ Samuel Fuller was among these carpenters, and in 1759 he began construction of St. George’s church in Schenectady with a prominent hipped gambrel roof.

Bradstreet also oversaw the construction of the Schuyler mansion in Albany by New England carpenters, probably hiring some of the same builders who had worked on the hospital and fort (Figure 7). Among those who worked on the

Schuyler house was master carpenter John Gaborial, who came from Boston specifically to do the work. The Schuyler house features a prominent hipped gambrel roof and was constructed using English-type framing. The brick walls of the house, unlike those of its neighbors, are solid masonry. Its center hall plan and Georgian detailing place it firmly in the British tradition of building.

Similarly, Sir William Johnson selected former Bostonian Samuel Fuller to oversee construction of his house, Johnson Hall, in 1763. It also has a hipped gambrel roof. In the contract for building the house, Fuller described the roof as “flat on the top”⁹, alluding to the shallow top slope and using the same terms as his Boston contemporaries. The plan and decorative program of Johnson Hall are similar to those of the Schuyler house.

The Patroon Stephen van Rensselaer had his house, built just north of Albany, constructed by Thomas Smith Diamond, yet another Boston carpenter, who moved to the city just after the French and Indian War (Figure 8). Built during 1763-1765, its plan and the details of its woodwork were similar to the Schuyler and Johnson houses. Its walls, built by the same masons who constructed the Schuyler house, were similarly of solid masonry, eschewing the local tradition of composite wall construction. In all of their details, these three houses proclaimed allegiance to the British. This is perhaps not surprising with respect to Sir William Johnson, who was born in Ireland, but it was a distinct statement for Schuyler and Van Rensselaer. It is of interest to note, however, that both waited to express this allegiance until the close of hostilities with the French and the sealing of the fate of the colony under the dominion of the British.

Two Building Traditions

At the beginning of the French and Indian War, the Loudon census of 1756 recorded that approximately forty-three percent of Albany’s population was of British origin, the balance being chiefly of Dutch extraction. The British were under-represented in the professional and merchant classes.¹⁰ After the war, the percentage of British households decreased. In 1767, approximately thirty-four percent of the households in the city were culturally English, the balance being largely Dutch. However, among the upper classes, twenty-six percent were English.¹¹ The decrease in population is attributable to the demilitarization of the city after the close of the war. Despite the lower overall percentage of culturally English residents, a larger number of those who remained were in positions of influence and had made strategic marriages to daughters of prominent local families. These decommissioned soldiers and merchants built houses that followed the forms and spatial traditions with which they were accustomed. Older merchant

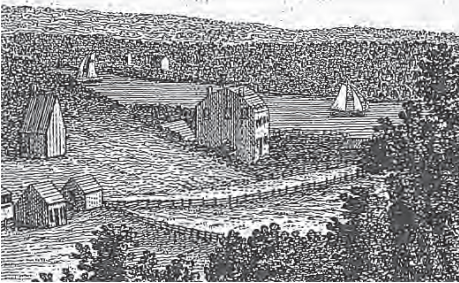


Figure 8
Detail showing the Van Rensselaer manor house, from “View of Rensselaerville Manufactory...” by Cornelius Tiebout (1792)



Figure 9
Watercolor of the Pruyn house, North Pearl Street, Albany (c.1840)

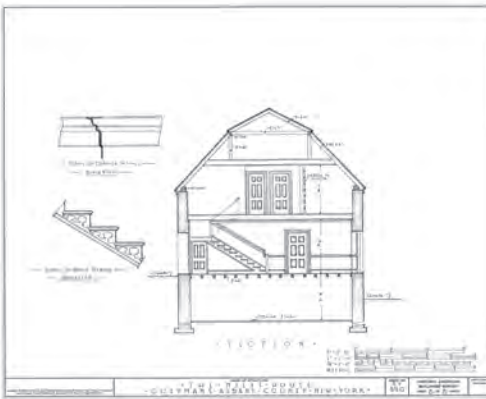


Figure 10
Section through the Coeymans-Bronck house, Coeymans, showing the upper portion of the gambrel roof supported on queen posts



Figure 11
The John Hewson house, Washington Avenue, Albany, as remodeled in the 1870s (2000)

families of Dutch cultural heritage quickly adopted these forms.

Among these groups, the English-derived gambrel-roofed forms became common after 1760. This house type was typically two stories in height, and was either three or four bays in width (Figure 9). The roof structure of such buildings was of the English type with either purlins or queen posts supporting the angle of the roof (Figure 10). Only one of this type of house remains standing in Albany: the John Hewson house on Washington Avenue, which underwent substantial alterations during the 1870s (Figure 11). Nearby Lansingburgh, in Rensselaer County, is fortunate to retain at least a dozen of these houses. Brick examples are found throughout the central portion of the city; two wood examples also still stand (Figure 12).



Figure 12
513 2nd Avenue, Lansingburgh
(2001). The façade was remodeled
in the late nineteenth century



Figure 13
Hendrick van Rensselaer house (Crailo),
Rensselaer. Photograph from Jonathan Pearson's
History of the Schenectady Patent (1883)

Several prominent houses were altered or received substantial additions in the middle decades of the eighteenth century. Crailo, in Rensselaer (Figure 13); the Herkimer house in Little Falls; and the Schuyler house (known as the Flatts), north of Albany, all received gambrel roofs. The changing form of these houses demonstrates the continuing anglicization of the upper classes in the upper Hudson Valley. This trend correlated with, and was bolstered by, the spread of an international cultural aesthetic known as “anglomania,” which saw the adoption of British cultural institutions, aesthetics, and manners throughout Europe and America.

While the tenant farmers of Rensselaerswyck adopted the gambrel roof starting about 1760, there are marked differences in its construction and form. Comparison between the structural system depicted in Figure 10 and the roof structure of the Douw Fonda house in Cohoes (Figure 14) makes the differences between the two systems clear. In the latter case, the paired rafters are truncated just above the collar tie and a board is placed on the outside edge to receive the top half of the bent. In all respects excepting the insertion of the board plate and the change in slope of the upper portion of the roof, the details of this structural system are identical to that seen in earlier houses that are explicitly culturally Dutch.

The bents of the Fonda house (and others of this type) are spaced approximately three feet apart, without purlins or queen posts. The slope of the lower pitch of the roof is essentially the same as the slope of earlier houses built in the upper Hudson Valley. Vlechtingen are retained on the gable ends of the earliest of this type of gambrel-roofed house, even though the new roof form makes them unnecessary, since the tops of the brick walls are covered by the roof. The Philip



Figure 14
Detail of gambrel framing in the
Douw Fonda house, Cohoes (2004)



Figure 15
The Mathias van der Heyden house,
Vanderheyden (Troy), in a nineteenth-
century engraved view

DeFreest house in North Greenbush, the Van Der Heyden house in what is now Troy (Figure 15), and numerous other examples were all constructed in a similar manner.

In addition to retention of the Dutch framing techniques for their roof construction, houses of this type also made use of the same composite structural system (comprised of a series of wood H-form bents embedded within brick exterior walls) that had typified houses of the upper Hudson Valley for more than 100 years. This method of construction remained typical of “brick” houses through the period of the Revolution and into the first decade of the nineteenth century and was a holdover from Dutch building traditions. One of the telltale signs of such a structural system is the presence of anchor ties on the exterior walls. Another is the fact that the low walls are usually one-and-a-half stories in height since the top of the posts extend above the beams supporting the second floor.

In the upper Hudson Valley, structurally Dutch gambrel-roofed houses were most frequently constructed in the period 1750-1775 and were infrequently built after the Revolution. The H-bent continued to be used, however; residential examples of this structural system dating as late as the early 1790s have been identified in rural Rensselaer County. These late examples all have gable roofs and their builders increasingly adopted structural, decorative, and spatial elements from their English-derived counterparts until the two traditions became almost indistinguishable. The culturally Dutch structural framing system did not vanish entirely, however. The bent system of framing may ultimately have influenced the development of balloon framing and may be the progenitor of the upright-and-wing-form house. New World Dutch barns continued to utilize the bent-frame structural system even after it was no longer used for houses and were



HISTORIC CHERRY HILL

Figure 16
The Philip and Maria van Rensselaer house (Cherry Hill), Albany (1975)

constructed as late as the fourth decade of the nineteenth century.

Structurally, English gambrel roofs continued to be built until after the Revolution. Cherry Hill, constructed in 1787, is the last house documented with this type of roof in Albany and was framed using the English method (Figure 16). Isaac Packard, another carpenter from the Boston area, was the builder. The contract that he wrote for the house

contains the only known use of the term gambrel in a contract document for an Albany building.

Although largely replaced by the gable roof by the end of the eighteenth century, several structures were built in Albany and its environs using the gambrel or hipped gambrel form of roof in the 1790s. The Watervliet Shaker meeting house (1794) in Niskayuna was gambrel-roofed, and St. Mary's Church in Albany (1797) had a hipped gambrel roof.

Two acts of the New York State Legislature effectively ended the construction of gambrel roofs—and their steeper “Dutch” counterparts—on houses in Albany. An Act of 1798 mandated that roofs “shall be of an elevation exceeding five inches *on every foot*, measured horizontally between the exterior points of the rafters...” (The emphasis is mine.)¹² A subsequent Act forbade a slope exceeding 7.5-inch elevation per foot measured horizontally.¹³ Late examples, such as the McNish house in Salem, Washington County, from 1794 and a proposal for a hotel in Columbia County preserved in the Ludlow family papers at the Albany Institute of History & Art and dating to c.1800, demonstrate that the roof form continued to be built in outlying areas until the turn of the century.

Conclusion

The popular adoption of the gambrel roof in the upper Hudson Valley occurred fifty years after its initial introduction to the area and was fueled by an influx of culturally English people after the French and Indian War. Its form was simultaneously adopted by the landed and merchant classes of the region, and the tenant farmers of the Rensselaerswyck Manor, but the houses constructed by these two groups differed in their structural systems and relied upon different building traditions. The selection of construction method was determined by class and cultural background.

Tenant farmers maintained the culturally Dutch system of framing even during their brief adoption of the gambrel roof form. They abandoned the gambrel roof by the Revolution while still retaining a culturally Dutch structural system well beyond that date. The Van Alen house in North Greenbush is an example of a house constructed using the bent framing system; it was completed in 1794. The persistence of these construction methods is a testament to the tenacity of Dutch culture in the upper Hudson Valley and the high esteem in which it was held in the rural districts of the region. The English structural form remained the preference for urban dwellers, who continued to construct gambrel roofs until about 1800, when they were supplanted by the gable roof.

This paper was originally presented at the Conference on New York State History, held at Bard College on June 6, 2003. It will appear in an expanded form as a chapter in a forthcoming study of the vernacular architecture of the upper Hudson Valley.

Notes

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3. *The Concise Oxford Dictionary of Current English*, 8th edition, 1944.
4. "Not Mansard or Gambrel", *Vernacular Architecture* 22 (1991), p. 25.
5. *Ibid*, p. 24.
6. William H. Whitmore, comp. *A Volume of Records Relating to the Early History of Boston, Containing Miscellaneous Papers*. (Boston: Municipal Printing Office, 1900), pp. 181-225 passim.
7. Albany Common Council Minutes. Transcribed in Joel Munsell, *Annals of Albany* (Albany, New York: J. Munsell, 1856), pp. 31-35.
8. John Bradstreet in Albany to Charles Apthorp in Boston, December 3, 1758. University Archives, Westport, Connecticut.
9. Sir William Johnson Papers, NYSL-MS, Box 36, Folder 4, New York State Library, Manuscripts and Special Collections, Albany, NY.
10. David G. Hackett. *The Rude Hand of Innovation: Religion and Social Order in Albany, New York 1652-1836* (New York and Oxford: Oxford University Press, 1991), pp.41-42.
11. 1767 Albany Tax List, transcribed in Florence A. Christoph, *Upstate New York in the 1760s: Tax Lists and Selected Militia Rolls of Old Albany County* (Camden, Maine: Picton Press, 1992), pp.1-35. Statistics are estimates based upon family and given names.
12. *Laws of the State of New York IV* (Albany: Weed Parsons and Company, Printers, 1887), pp. 160-161.
13. William P. Van Ness and John Woodworth. *Laws of the State of New York, Revised*. (Albany: H.C. Southwalk & Co., 1813. p. 474.