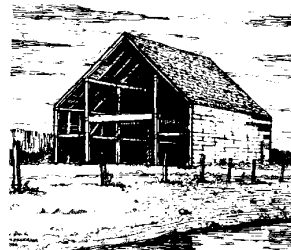


# DUTCH BARN PRESERVATION SOCIETY NEWSLETTER



SPRING 2005

VOL. 18, ISSUE 1

## NOTES ON THE ROOF CONSTRUCTION OF DUTCH-AMERICAN AND OLD-WORLD DUTCH BUILDINGS

*Text and Drawings By John R. Stevens*

When the Dutch settled their New Netherland colony, they brought with them a prototype, a model of the form of timber framing they would use in the New World. In the early 1600's the use of timber for building construction was shrinking in the Old World because of the scarcity of home-grown timber. Brick then became the common

material for the walls of houses. However, in the northwest of the country, north of Amsterdam there was the center of the timber import trade, focussed on Zaandam, and where wind-powered sawmills converted trees—largely brought in from Germany and the Baltic countries—into squared timber and boards. This area of the

Netherlands—the Zaanstreek—is the area where timber framed and clad buildings are still the most common in the Netherlands today, and where they can be seen in considerable numbers. There are a few houses in this area that date from the time of the settlement of New Netherland. Peter Sinclair and the writer closely inspected one

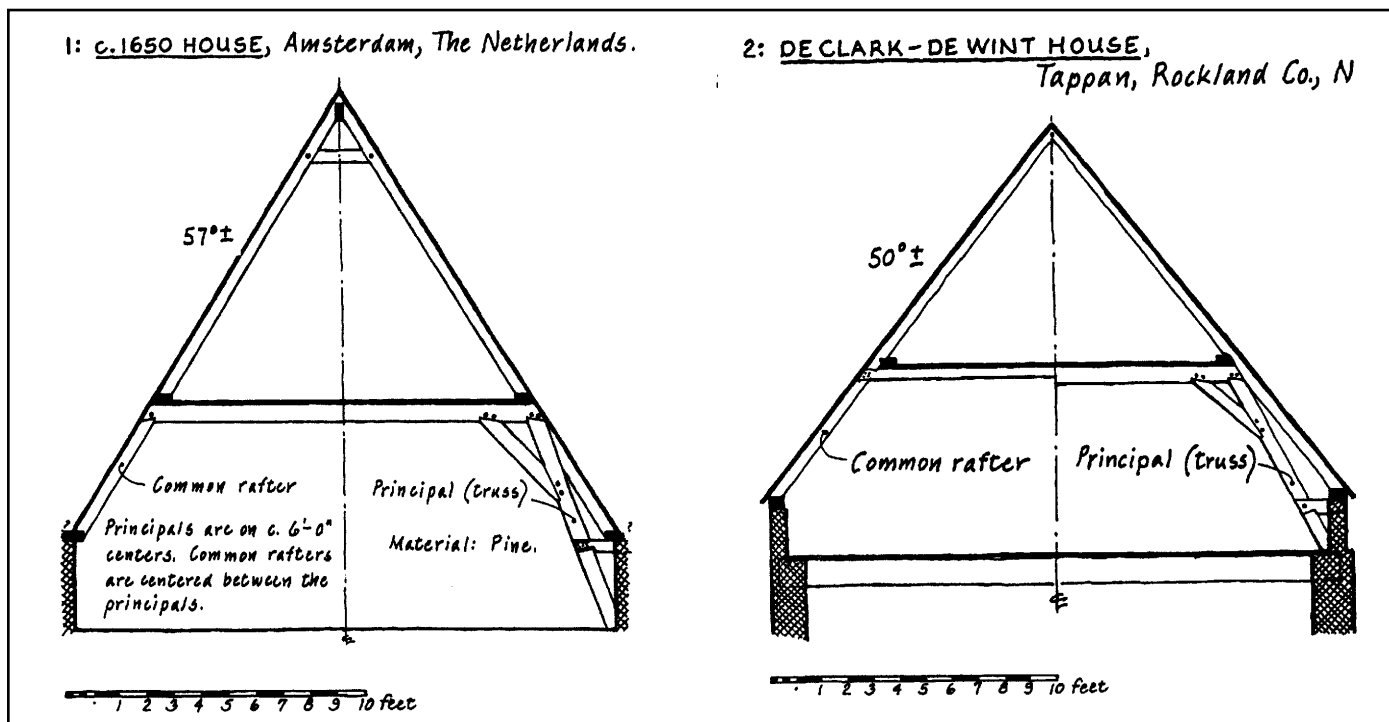


Fig. 1. Roof of house at Prins Hendrikade 23, Amsterdam (in 2000 was part of Hotel Schumann. It is near the Central Station). The right-hand side shows a form of truss system used on alternate rafter pairs; the left hand side shows the intermediate rafter pairs. This roof, which is dated pre-1650, appears to be typical of roofs of its time in Amsterdam. In the Zaanstreek, roofs have a simpler construction. Purlins support vertical boarding to which battens are applied, on which to hang pantiles.

Fig. 2. De Clark-de Wint house, 1700 at Tappan, Rockland Co., N. Y. The right hand side shows a truss system similar to that in (Fig. 1). There are four such trusses (principals) in this roof, carrying purlins. As shown on the left there are common rafter pairs between the trusses—either two or three pairs, supported by the purlins.

## Roof Construction

(continued from page 1)

in October 2003. It is dated 1626 and has very similar proportions to New World examples. The construction details are similar to North American examples but there are variations that differ from what we find on this side of the Atlantic. Its roof is framed with fairly widely spaced common rafters, and purlins support vertical roof boarding, to which pantiles are applied on battens nailed to the roof boards.

Were houses like this one the models for construction in the New World? Possibly, but if so the earliest surviving American examples exhibit a level of development that make them distinctively different from their 'prototypes' in the Zaan area. It is, to say the least, difficult to generalize how representative

surviving American buildings are of the time they were built because so few of them survive. The two oldest examples of timber-framed Dutch-American buildings we have, both in Brooklyn on Long Island, are quite different from one another. The Pieter Wyckoff house (circa 1650 - 1670?) and the Jan Martense Schenck house (circa 1670's?) have what might be called 'Americanized' features in their construction—particularly in the case of the Jan Martense Schenck house. I might particularly note the way its rafters are trenched for shingle lath (a counterpart of thatch poles in the Old World). This is not an British feature either (as far as I have been able to determine). While trenched shingle lath is found on a few early New England houses, like the Thomas Lee house (circa 1660 - 1670) at East Lyme, Connecticut I am not aware of rafters being

trenched for thatch poles in the Old World in a British context.

The timber-framed Dutch-American houses the writer is most familiar with, on both sides of the Hudson River south of Albany and north of Ulster are strikingly similar in their construction details. They date in a period 1720-1750. The Luykas van Alen (1); Leendert Bronck (2); Arent Bradt (3); Jan(?) van Hoesen (4); van Deusen (5) houses have brick end walls and brick filled and veneered front and rear walls (note: the rear wall of the Arent Bradt house is brick filled but without the veneer covering—this was also the situation with the no longer extant Hendrick Breese house); The Abraham Yates house (6) has a brick end (façade) wall and the other walls weatherboarded; The Pieter Winne house (7) has a partial brick end wall with the gable weatherboarded as well as its other three walls. The Daniel Winne (8) and Abraham Glen (9) houses have all four walls weatherboarded. The oddest example in this group is the Coeymans secondary house (10) which has a brick facade and the side walls plastered over the wall posts and the stick-and-clay wall infill.

The carpentry of these houses is so similar, they might all have been built by the same team of craftsmen. Probably not, but it would seem as if something like a 'school' of carpenters produced houses that were so alike in their construction details? All of these houses have a certain 'Dutch feel' to them, but do not replicate Old World work. How to explain it?

## BARN S

As was the case with houses, a prototype barn concept was brought to America from the

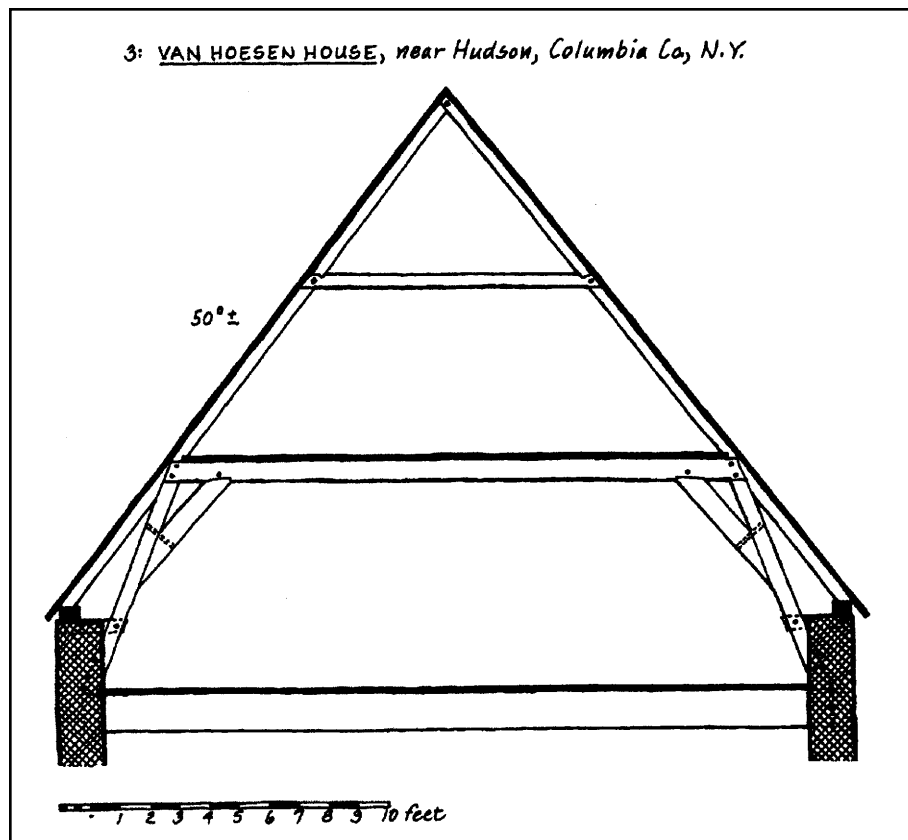


Fig. 3. Stone van Hoesen house, c. 1700. Northwest of Hudson, Columbia Co., N. Y. Seven rafter pairs, all made with trusses as shown. The roof of the Ariaantje Coeymans house was originally built like this.

Old World. Barns in the Netherlands in the early 17th century were of a number of basic types according to the region of the country in which they were located. One of these types, in the central to northern region of the eastern part of the country, adjacent to the German border was the three-aisled 'hallenhuis' that had H-bent construction using anchor beams (ankerbalken) with extended tenons secured with wedges in addition to wooden pins. The wedges bear against the outside faces of the columns while the pins go through them. Dr. Ellen van Olst, former director of the SHBO (Stichting Historische Boerderij-onderzoek—center for the study of historic farm buildings) told the writer in a letter several years' ago, after having studied a number of my drawings of Dutch-American barns that this type of barn originated in western Germany (good specimens to support her point can be seen at the open-air museum at Detmold in Germany). This type became the model for the Dutch-American barn. Another structural type that occurs in the same general area—also a three-aisled 'hallenhuis' employed 'dekbalken'-tie beams set on top of the columns, and extending (cantilevered) past the columns, carrying the rafters on their ends. For whatever reason, 'dekbalk' construction does not seem to have made it to this side of the Atlantic, or if it did we have no knowledge to verify the possibility of its having done so.

The rural Dutch population in the early 17th century was quite poor, as I suppose can be said of all the peasantry in Europe. The farmer and his family lived in one end of their rather small barn/house. The living space was not partitioned off from the

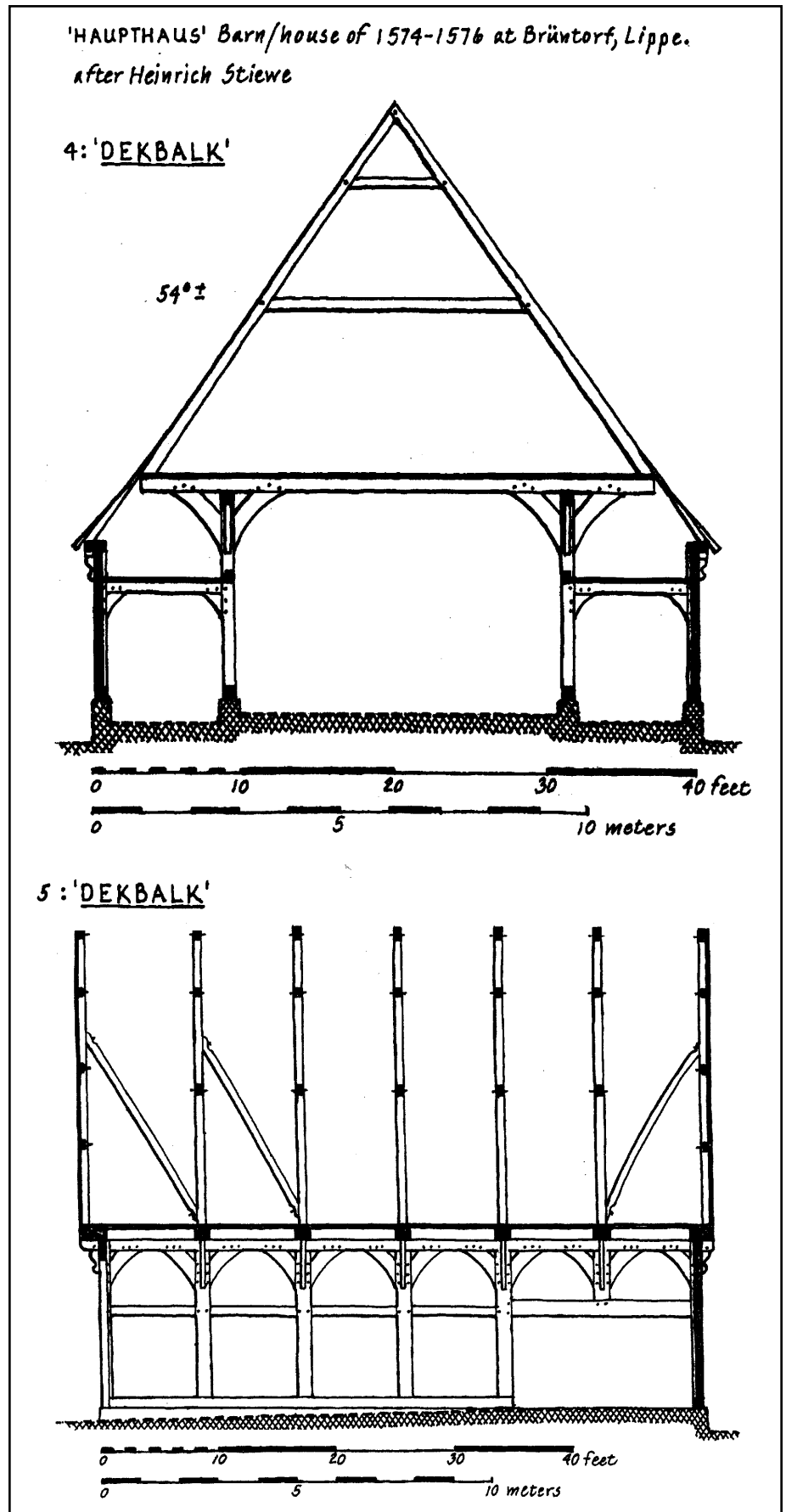


Fig. 4.5. 'Dekbalk' barn/house, 1574 -1575, at Brüntorf-Lemgo, State of Lippe, Germany. This is the alternative to 'ankerbalk' (anchor beam) construction which is found in the same area, extending from the Netherlands into western Germany. After drawings by Dr. Heinrich Stiewe.6

## Roof Construction

(continued from page 3)

threshing floor and animal stalls. There was no chimney. The heating and cooking fire was made on the floor (stone cobbles) and smoke made its way out—as best it could—through a hole in the thatch of the gable end. Timber being scarce, everything that could be used, was (incredibly crooked timbers were utilized). The 'los hoes'

from Beuningen, Overijssel province (circa 1700) at the Netherlands open-air museum at Arnhem is a survivor of this simple type, and might be considered a model for the New World Dutch barn in North America, barns similar to this "Los Hoes" (but built with straighter timbers because there was an unlimited supply of timber available) echoed its construction, and continued to be built into the 19th century. The

writer is particularly thinking of the Wortendyke barn at ParkRidge, New Jersey. Several years' ago, on an HVVA tour, building restorer George Turrell showed us two similar barns he had moved, one in Bergen Co., New Jersey and the other in Rockland Co., New York. All three of these barns have very low side walls which particularly relates them to Old World examples.

### 6: THE MISSING LINK IN NEW WORLD DUTCH BARNS?

OLD WORLD PRECEDENT WITH SUPERIMPOSED TRUSSES.

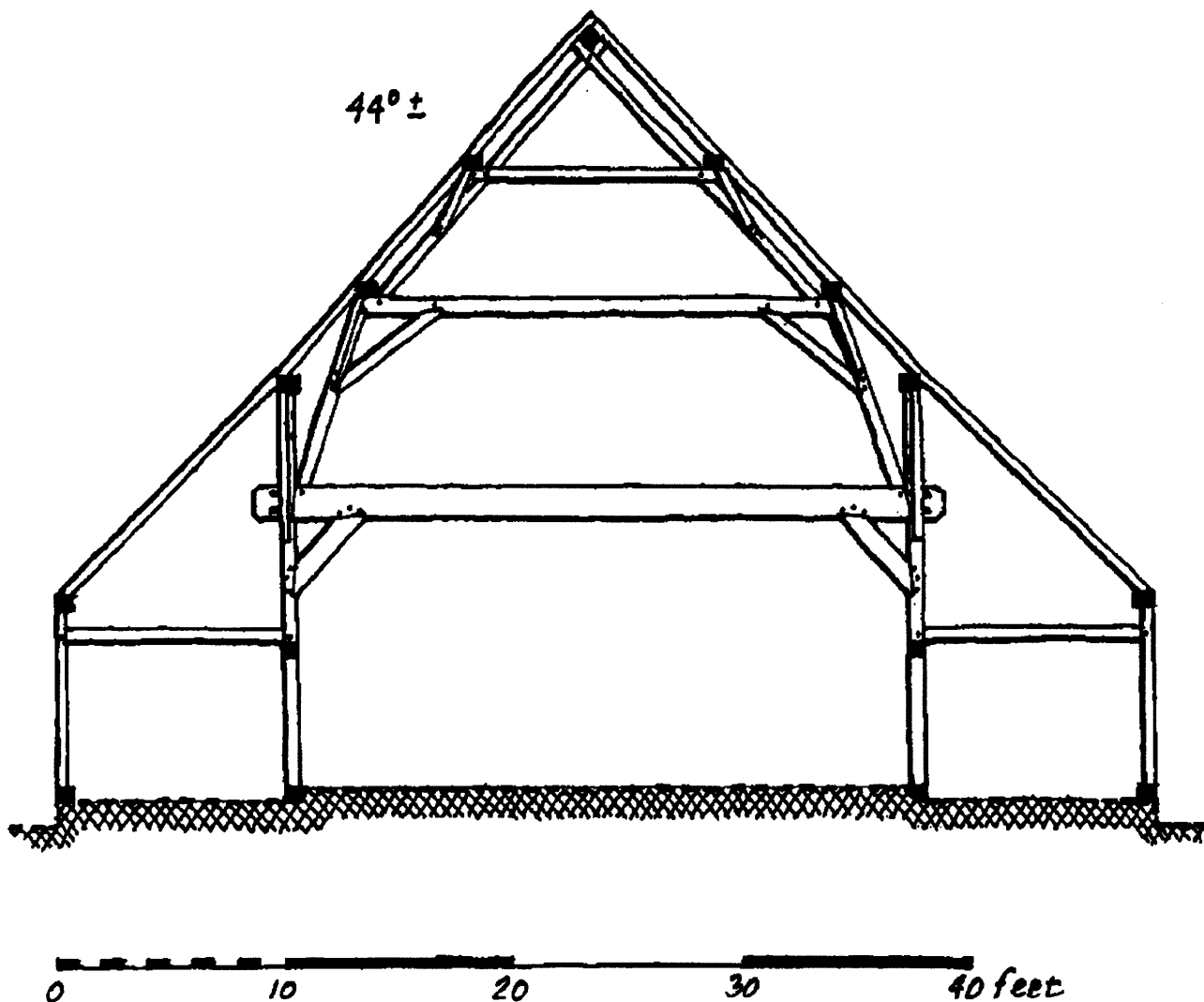


Fig. 6. The "Missing Link"? Were there American barns with roofs as shown here, with super-imposed trusses and purlins that supported common rafters? There may have been, but we have no record of their existence—which however does not mean that such roofs could not have existed in the 17th, and into the 18th centuries?

We know from surviving contracts that the Patroon at Rensselaerswijk had huge barn/houses built on the three-aisled plan, of about 100 feet in length. There is also a contract of 1642 for the building of one of these large barn/houses at the Achter Col settlement in New Jersey about opposite from New Amsterdam. We are pretty sure these barns were built with H-bents. In view of their size, might it have been possible that their roofs were built with superimposed trusses, as similarly large barns in the Netherlands probably would have been? But we do not have detailed descriptions or drawings so we can only speculate on how barns developed in the New World prior to the oldest surviving examples—which do not go much further back than the second quarter of the 18th century.

The Nieuwkerk and 'Solite' barns represent, with their relatively complex roof construction, the earliest surviving specimens of Dutch-American barns. In the absence of other early specimens it is difficult to assess how representative they are of early building practice. The example illustrated on page 9 of the Berends book ... *Historische Houtconstructies* (11) ... is a strikingly close parallel to these American examples.

However, many Old World Dutch barns, particularly in the larger size range, have more complex roof construction. Many examples are shown in the Berends book. Trusses are erected on top of the anchor beams, consisting of angled struts joined at their tops with a tie beam which in turn carries on its ends rafter-supporting purlins. The same construction is used in the roofs of houses (see fig.1 and 2; also HVVA Newsletter, Vol. 4, No. 10, Nov.-Dec. 2002, page 6). The

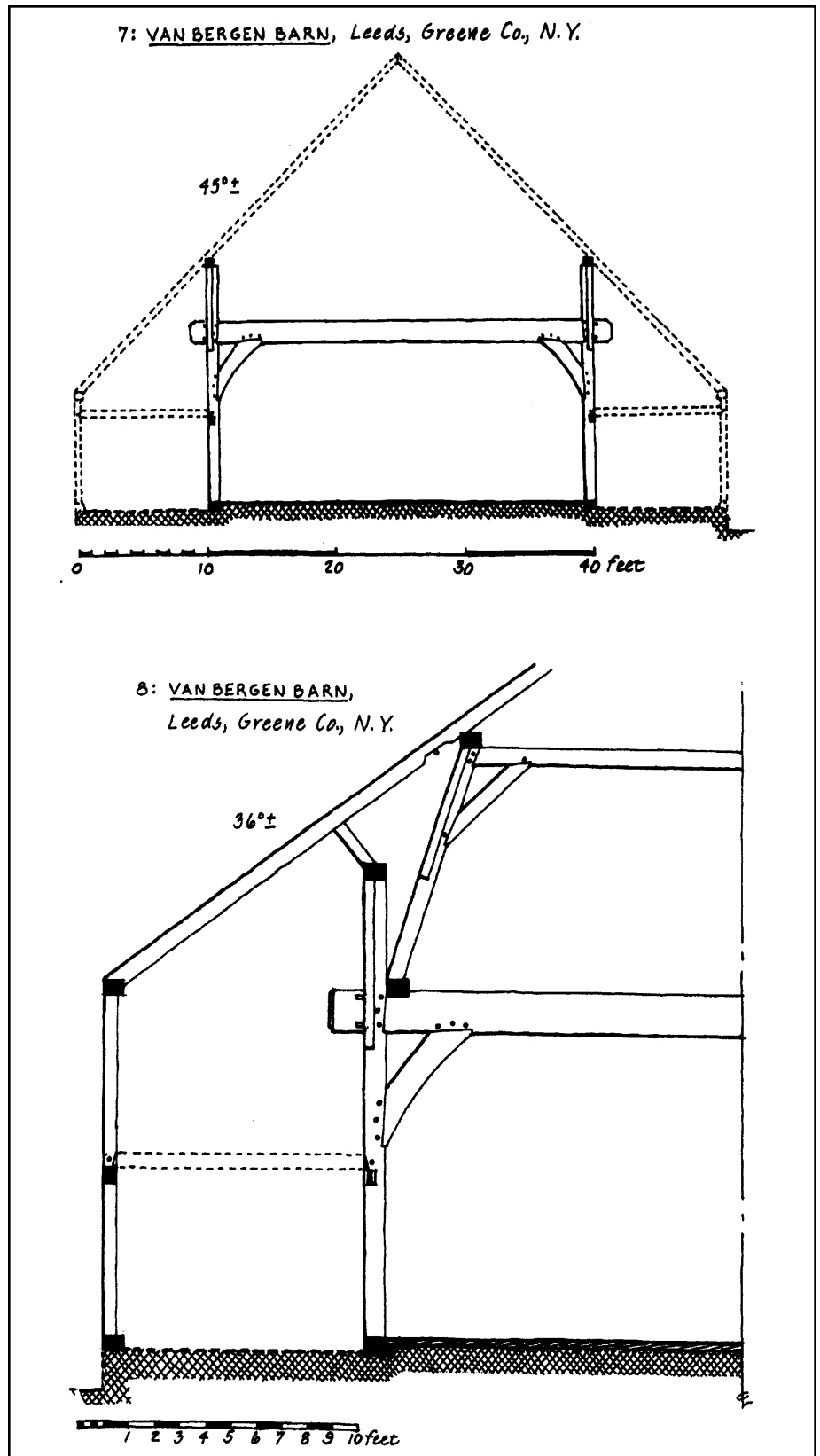


Fig. 7. Van Bergen - Vedder barn (formerly) at Leeds, Greene Co., N. Y. It was located adjacent to the still-extant Garret Van Bergen house which is dated 1729. This barn had been believed to date to the 1680's (there is a N. Y. State marker to this effect) but Gregory D. Huber is of the opinion that it is more likely contemporary with the house, with which the writer concurs. There are six H-bents.

Fig. 8. Van Bergen-Vedder barn. Half section showing superimposed trusses erected upon the anchor beams which apparently dated to the early 19th century when the side walls of the barn were raised in height and the roof pitch was reduced. The old rafters were re-used. There is an eerie resemblance to the truss systems shown in illustrations 1, 2, 3, 6.

## Dating Buildings

(continued from page 5)

only American barn to survive into the recent past with this construction was the Garrett van Bergen barn, formerly at Leeds in Greene Co., New York. It was reputed to have been built in the 1680's (see DBPS Newsletter, Vol 8, No. 1, Spring 1995). Greg Huber, in his revision of John Fitchen's *New World Dutch Barn* (2002) revises the dating of this barn to c. 1729, the construction date of the still extant Garret van Bergen house (see page 185).

Huber's dating is very possibly correct. Dendrochronology could have determined the dating but we are only now employing this technique to date Dutch-American buildings (dendro-dating is very advanced in the dating of early New

England houses). The Van Bergen barn had a superimposed truss system carrying purlins, very similar to that used in Old World Dutch barns. A difference was that in the Van Bergen barn, the tie beam morticed into the sides of the struts; in the Old World the struts morticed into the underside of the tie beam.

The late Vince Schaeffer was of the opinion that the trusses were an original feature of the Van Bergen barn, and from my observation of them the craftsmanship employed was not really distinguishable from the H-bent framing. The barn had been rebuilt in the early 19th century when the side walls were raised in height (actually replaced) and the rafters of a moderately-pitched roof were supported on the truss purlins. The original purlins became redundant. Mr.

Schaeffer, in his belief that the trusses were an original feature, proposed a reconstruction of the barn in which the rafters were in contact with both purlins. This made for a very steep roof (but not unlike the known roof pitches of houses of the time, like the Pieter Winne house of the 1720's) and (to my way of thinking) very narrow side aisles. The original rafters were re-used in the 19th century rebuild and they showed (redundant notches and broken pins) only a single bearing point where they had lain on, and been pinned to, the purlins. The writer is of the opinion that these trusses, because of their resemblance to Old World examples are a kind of "red herring" and in spite of the craftsmanship exhibited in them being so similar to the original work, they were in fact part of the early 19th century rebuilding.

John R. Stevens  
Greenlawn, New York,  
November, 2004.

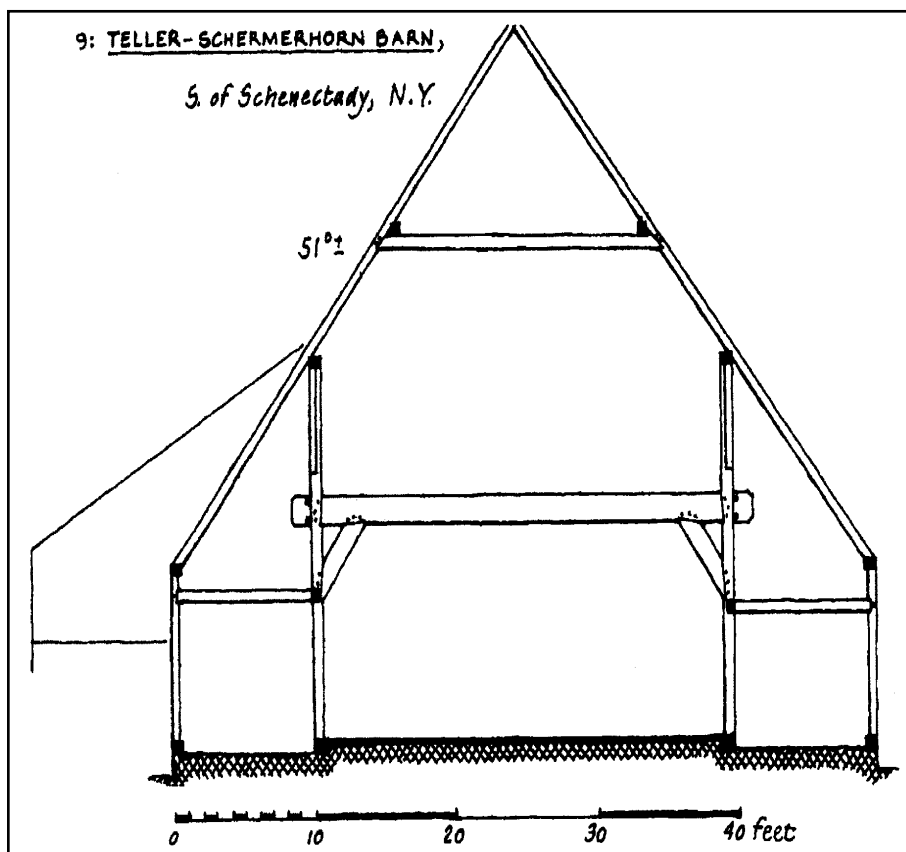


Fig. 9. Teller - Schermerhorn barn (formerly) south of Schenectady, Schenectady Co., N. Y. Dating uncertain—may date to the early part of the 18th century? Five H-bents, eleven pairs of rafters. End rafter pairs; fifth and eighth pairs from north end equipped with collar ties that carry purlins which in turn support the intermediate rafter pairs.

## NOTES

1. Dated 1737, Kinderhook, Columbia County.
2. Dated 1738, West Coxsackie, Greene County.
3. C. 1736 (?) Southwest of Schenectady, near the site of the Teller-Schermerhorn barn.
4. C. 1740 - 1750 (?) Near Hudson, Columbia County.
5. C.1730(?) Stockade District, Schenectady, Schenectady County.
6. C.1742 East of Hudson "under Becraft Mountain" (Helen Reynolds).
7. C.1723(?) Bethlehem, Albany County.
8. C 1751(?) Bethlehem, Albany County.

9. C.1730(?) Scotia, Schenectady County (near the Glen-Sanders mansion).

10. C.1720(?) Coeymans, Albany County.

11. Berends, G. 'Historische Houtconstructies in Nederland', Arnhem: Stichting Historish. Boer-Derij-onderzoek (SHBO) 1996.

About the author. Throughout eastern Canada, New England and New York, John Stevens has devoted half a century to serious restoration and illustration of sailing ships, steam ships, electric trains and buildings. We are fortunate indeed that his interest also includes American-Dutch Barns. He is a prolific author and lecturer. Due out is his abundantly illustrated book, "Dutch American Buildings." He has appeared frequently in previous News Letter's.

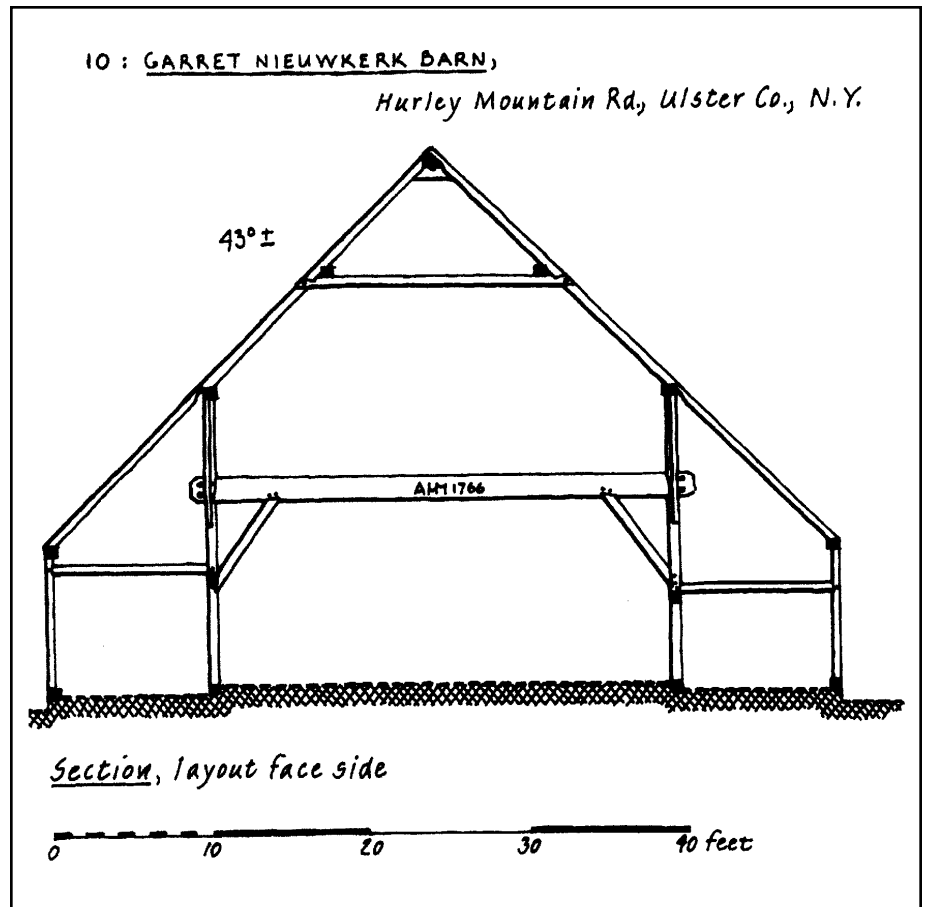


Fig. 10. Garret Nieuwkerk barn. Hurley Mountain Road, Ulster Co., N. Y. Has initials AHM and date 1766 carved on the face of an anchor beam. The rafters are in two parts, with separate rafters over the side aisles. Five pairs of principal (major) rafters which are fitted with collar ties that support purlins. The principal rafters also support a ridge timber. Two common (minor) rafter pairs are spaced between each principal pair and are supported on the purlins and ridge timber. The common rafters, including all the rafters over the side aisles are more or less unbarked poles.

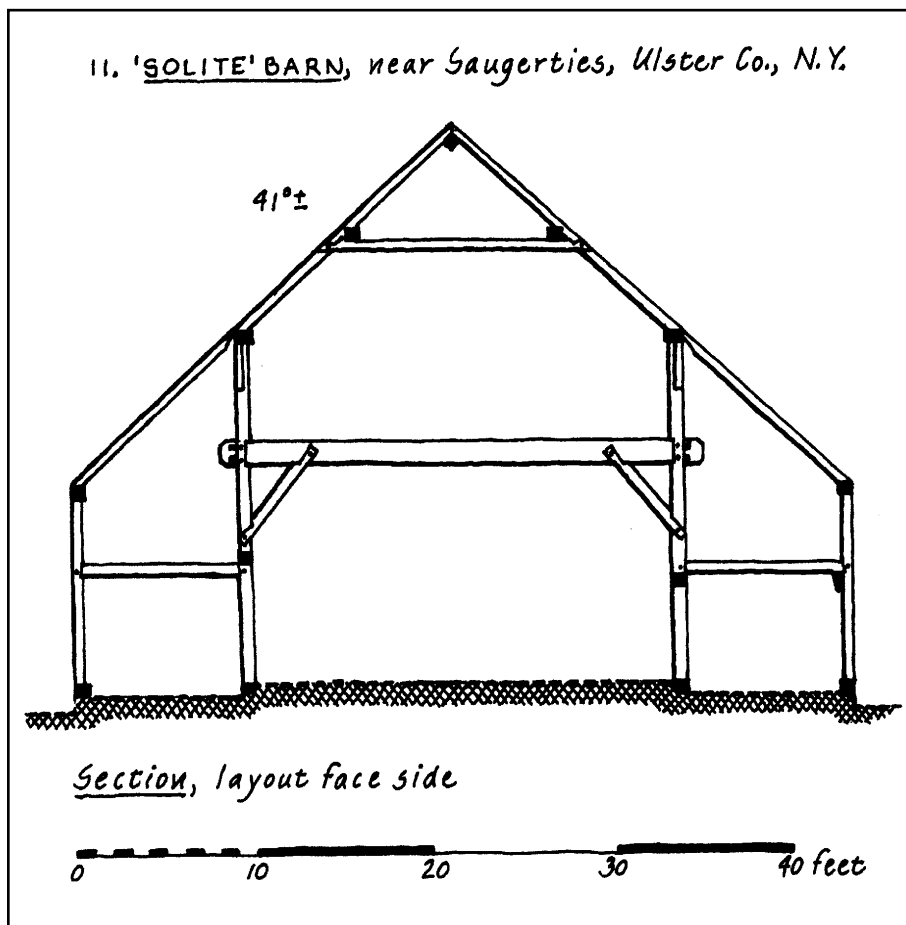


Fig. 11. 'Solite' barn (formerly) south of Saugerties, Ulster Co., N. Y. The dating of this barn is estimated as being later (by 10 or 20 years?) than the Nieuwkerk barn on account of the higher side walls and lower pitched roof. Three H-bents. Rafters are in two lengths, with separate rafters over the side aisles. Seven pairs of principal rafters fitted with collar ties that support purlins and a ridge timber. There is a common rafter pair between each principal pair. As in the Nieuwkerk barn, the common rafters, including the ones over the side aisles are unbarked poles. This barn has been taken down and is presently in storage, awaiting re-erection at the Kierstede house in Saugerties (Saugerties Historical Society).

12: 'EAST OF SHARON' BARN, Schoharie Co., N.Y.

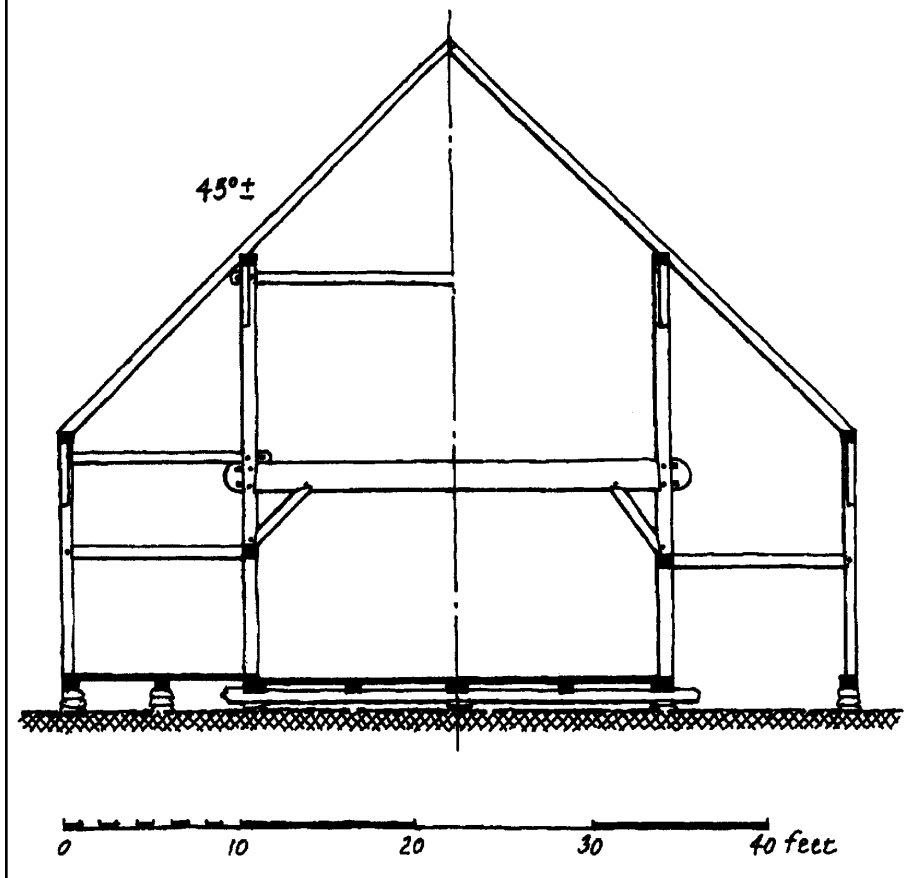


Fig. 12. 'East of Sharon' barn (formerly) on Route 20, near Sharon, Schoharie Co., N. Y. Dating estimated as late 18th century. Typical in many respects of the later phase of Dutch-American barn development, with extreme elongation of the columns above the anchor beams and having relatively high side walls. Five H-bents. Ties are fitted near the tops of the columns on the end and middle H-bents. There are nine rafter pairs that align with the outside wall posts. This barn was taken down in 1969 and has been re-erected at Old Bethpage Village Restoration in Nassau Co. on Long Island, N.Y.

13: WAGNER BARN Nr. Poestenkill, Rensselaer Co., N.Y.

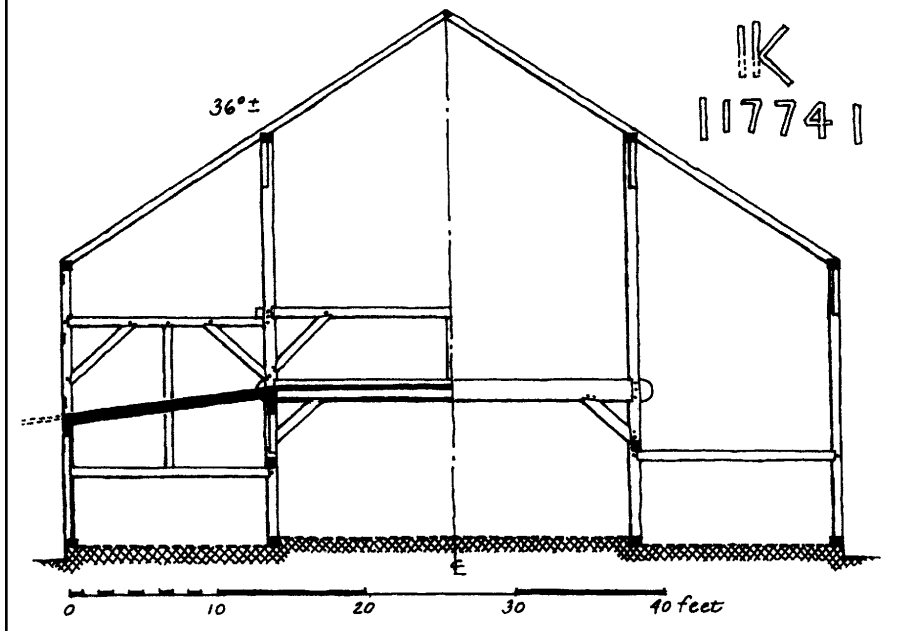


Fig. 13. Wagner barn (formerly) near Poestenkill, Rensselaer Co., N. Y. While the initials IK and the date 1774 are chisel cut into an intercolumnar tie adjacent to the east end doorway, this dating, to judge from the form of this barn, is suspect. This barn, with eight H-bents is the longest Dutch-American barn that has survived. The extreme elongation of the columns above the anchor beams is exceptional. This barn represents a variant type, of which there are several examples in Rensselaer Co. In addition to the usual end doorways it has a ramped entrance in the middle of one side so that hay wagons can be brought on a level with the tops of the anchor beams. Upper column ties are fitted only to the middle pair of H-bents (four and five). There are sixteen rafter pairs. This barn has been re-erected at Weston, Vermont.

## DUTCH BARN PRESERVATION SOCIETY NEWSLETTER

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