Pennsylvania Barn Speak

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How to Really See a Barn
Agreeing on Basic Barn Terminology

![Diagram of a barn with labeled parts: rafter, purlin, canted purlin post, tie beam, strut, loft beam, post, down brace, threshing floor, summer beam, stalls, bank, roof plate, forebay, cantilevered floor beam, barnyard.]

Adapted from Barns of Union County by Chris MacNeal
The Pennsylvania Barn

Printed by the Pennsylvania Dutch Folklore Center
1955

Edited by Dr. Alfred L. Shoemaker
“Not only is this the first book on the Pennsylvania Barn, but-as far as I am able to learn-it is likewise the first book ever on the barn, not only in the United States, but in Western Europe as well.”
TFG Glossary of Terms 2015

ABUTMENT. In joinery, the end of one timber touching another. See also BUTT JOINT.

ADZE. Handled edge tool (various patterns) with its edge at a right angle to the handle, used to shape or dress timbers.

AISLE. Longitudinal volume (parallel to the roof ridge) in a building divided into several such spaces, usually three.

CE BAY.

ANCHOR BEAM. In a Dutch barn, the major tie beam joined to H-beam posts, generally by outside-wedged through tenons.

ANGLE TIE. Horizontal corner brace at plate level, often combined with a dragon beam (g.n.) under hip roofs.

ANISOTROPIC. Material whose structural properties are not identical in every direction.

ARCH BRACE. 1. Curved brace. 2. Brace rising from bridge abutment to support lower chord of truss.

ARRIS. Line along which two adjacent surfaces meet. In some square rule (g.n.) carpentry, the reference line formed by the meeting of two datum (reference) planes.

ASHLAR PIECE. Short vertical strut near the foot of a rafter, joining it to a sole piece at the top of a masonry wall.

ASSEMBLY MARKS. See CARPENTERS’ MARKS.

AUGER. Handled edge tool for boring holes in wood.

AXIAL LOAD. Force applied along member's neutral axis.

BACKING. Top surface of a hip or valley rafter, bordered to follow the slopes of adjacent roof surfaces. The hip backing is thus convex, the valley backing concave.

BAREFACED DOVETAIL. Dovetail (g.n.) flanked only on one edge, suitable for mortising as well as housing. See also HALF-DOVETAIL.

BAREFACED TENON. Tenon flanked by only one shoulder.

BARGE BOARD. The board covering the ends of purlins at the gable end of a roof. Also RAKE.

BASE CRUCK. Cruck with blades starting as posts and curving upward to end at the collar beam. See CRUCK FRAME.

BASKET HITCH. Open sling configuration for lifting timbers. Cf. CHOKE HITCH.

BAY. Crosswise volume (perpendicular to roof ridge) in a building, bounded by two bays or crossframes. Cf. AISLE.

BEAM. Any substantial horizontal framing member.

BEARING. Area of contact in a joint through which load is transferred.

BED TIMBER. Short, stout timber used to distribute concentrated loads at bridge piers and abutments.

BEETLE. Large wooden mallet typically weighing 15 to 30 lbs. Also COMMANDER, PERSUADER.

BENDING. Deviation from straight resulting from the application of force. In a bent member, the concave surface is compressed, the convex surface is tensioned and the neutral axis is unaffected.

BENT. 1. Assemblage of timbers perpendicular to the ridge, usually the crossframe of a building, sometimes including rafters, assembled on the ground and then turned up into position. 2. One of the supporting frames of a railroad trestle.

BEST EDGE. On a timber to be laid out, the secondary reference surface adjacent to the best face.

BEST FACE. On a timber to be laid out, the primary reference surface, which will typically receive flooring or wall and roof sheathing. Not an appearance term.

BEVEL. Any nonorthogonal angle taken through the breadth or depth of the material: the tool to measure or lay out such angles.

BINDING JOIST. Floor timber, often lying perpendicular to the ridge, connecting posts and carrying common joints; joint resting on the wall plates and carrying other joints. Cf. BRIDGING JOIST.

BIRD’S MOUTH. 90-degree notch cut into the lower end of a rafter to fit the upper inside corner of the plate. Cf. CROWFOOT.

BISUALGE. Forged, double-ended cutting tool about the height of a worker, a mortise chisel at one end and a s sickle at the other and with provision for a wooden handle near the middle, for chopping and trimming mortises and smoothing work. Called a meyhill in England.
Eleven Styles of Pennsylvania Barns
Charles Dornbusch 1958

1. Type “A” Primitive Two Level Log Barn
2. Type “B” Double Crib Log Barn with Runway
3. Type “C” Transitional Barn with Gable in Bank
4. Type “D” Stone Ground Barn – with slight ramp
5. Type “E” Two Level Stone Barn – Bank Barn or Level Ground
6. Type “F” Early Sweitzer Barn – Frame/Log barn on raised stone Foundation
7. Type “G” True Sweitzer Barn with cantilevered forebay
8. Type “H” Stone Barn - Gable Wall includes forebay
9. Type “J” Stone Barn with Extended Forebay – supported by columns
10. Type “K” Stone Barn with Loggia
11. Type “L” Stone Three Level Barn

* No Type “I”
Classes of the Pennsylvania Barn

Robert F. Ensminger 1992

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*Dornbusch Type L is a double-decker barn without forebay
A “Pennsylvania Barn” vs. a Pennsylvania barn

Great Britain

English & German ground barns

Switzerland
What Elements Make Up a Classic Pennsylvania Barn?

Can we come up with a common language to describe the various barn components?

What features does a barn need to have to be considered a good example of a Pennsylvania Barn or a “classic”?

Does a barn have to be “special” to be significant?
Bank Barns

- Natural Grade
- Manmade Grade

Ramp to barn wall

- Stone abutment walls
- Ramp stops before wall

Ramp to barn wall

- Uncovered ramp
- Covered bridge

Shed roof bridge house

Gable roof Bridge house
Bridge Houses
The classic Pennsylvania barn is often referred to as a Sweitzer barn. The terminology is odd since the barns are of German origin while Sweitzer is a German word for Swiss. The term has been documented in use as describing Pennsylvania German barns since the early 19th century.

A classic Sweitzer barn has an asymmetrical saltbox-like silhouette and the forebay is a distinct unit of the barn.
What are the characteristics of a Pennsylvania Dutch barn? What distinguishes them from the English-type barn found but rarely in southeastern Pennsylvania?

1. The ground floor is used exclusively for stabling the animals. The English-type barn, a one-floor structure, has the stables and mows all on the ground level.
2. The second story with the threshing floor in the middle, flanked by the mows on either side.
3. The projection of the second floor over the stables, called either a Vorschuss or Vorbau in the Pennsylvania Dutch dialect, and a foreshoot or forebay in English.
4. The entrance to the second story is on a level if the barn is built against a bank (hence the name "bank barn"): or by a ramp, called a scheier-brick in the dialect.
English Lake District barns had pent roof protecting stable doors

- Cumbria High Fells
© Jen Deadman
A barn with a full stone barnyard elevation having a pent roof (as suggested by the projecting stone drip course and out looker joist pockets) is generally as compared to a fore bay, is generally diagnostic of an English Lake District barn as compared to a traditional Pennsylvania Standard barn where typically only the recessed, lower portion of the forebay wall is stone.
Stone Stable
High

Large cellar barn stone stable high
Frame barn, stone stable high
Threshing Floor

The central or threshing bay was accessed by a double door on the longitudinal (i.e., eave) side wall. The central bay was often used as a driveway and historically – before threshing was mechanized [in the 1850s and 1860s] – as a threshing floor.

Do you still refer to the central bay as the threshing floor for barns built in the latter half of the 19th century?
Barn Terminology – Primary Sources

Double-decker or “Double Decked” barn

1864 American Agriculturist
• It will be noticed that, according to the drawing, the threshing floor is nearly 18 feet wide.

• This is much wider than is generally considered necessary; 15 feet is wide enough. This width of the floor would admit of larger hay and straw bays, of larger corn-bins, and besides, of the great convenience of sliding doors.
Double overshoot
double purlin
barn
Chester Co
PA
1837

A, shows the position of one entry door.—
B, B, two stable windows.—C, C, mangers.
D, window above entry door.—E, window in
gable end.—F, F, F, F, ground line.—G, G,
oists which extend under the floors, the
whole width of the building which here is
supposed to be fifty six feet, eight of which
on each side are supposed to overshoots, or
projections beyond the stable walls.—H, H,
stable walls.—I, I, plates.—K, K, lower pur-
lins, which also serve as plates.—L, L, up-
er purlins.—M, M, ties.—N, N, vertical
posts under lower plates.—O, O, vertical
posts under lower purlins.—P, P, diagonal
posts under upper purlins.—Q, Q, rafters.—
R, bridge-wall.—S, S, road-way.

1. Shows the position of a block suspended
to the summit of two rafters, in which two
vertical pulleys turn upon one fixed shaft or
rafter.

2. Shows the position of another block,
suspended to a purline or rafter; this block
has one vertical pulley turning within it.

3. Shows the position of a block also sus-
pended to a purline or rafter, and has three
vertical pulleys to turn within it upon one
fixed shaft.

4. Shows the position of the centre of a
wheel and axle.

5. Friction pulley.

P. S. The lower part can be varied to
accommodate the sheep, while the upper is
constructed as above described.
Overshoot & Abutment House

Bucks County Intelligencer on November 15, 1877

…..barn, **51 x 30 feet**; frame overshoot, **51 x 10 feet**, attached; frame abutment house, **51 x 10 feet**, attached to barn; frame hay house, stone stable high, **50 x 22 feet**, adjoining barn; 1-1/2 story stone wagon house, **20 x 25 feet**; frame hog pen, **20 x 19-1/2 feet**, adjoining; two large corn cribs **22 x 20 feet**, drive-way between and all under roof; smoke house, spring house, ice house and other out buildings. … house and barn furnished with water conducted through pipes from the stream by hydraulic pressure…
Second or “bank” floor plan for housing the products of the field.

Ground floor plan for housing the animals of the farm.

Shoemaker
Exterior Features

- Horsepower shed
- Earthen bank
- Stable-level window openings
- Wagon doors
- Feed aisle and stable doors
Front of the Barn

- Recessed or Closed Forebay
- Stone to the peak
- Extended Forebay
- Winnowing doors
- Frame gable
- Stone to the Square
- Granary door
Jacob H. Taylor Upper Makefield Township…frame barn, stone stable high, 42 by 30 feet, with a bridge house attached, 12 by 42 feet, with a wagon house underneath; **straw mow attached in front 42 by 12 feet**

• July 24, 1880 Bucks County Intelligencer

*note the queen post truss in the wall framing*
Ventilation

Ventilation kept the hay from heating up.

Ventilation Slits

Louvered Vents

- Pennsylvania Agricultural History Project

Splayed slits

Wooden louvers
Collar beam

Principal purlins
Granary

Hay Mow

Tie Beam

Inter-tie

bent

Transom girt
Threshing Floor
Swing Beam
Purlin Plates

In a roof frame, a longitudinal continuous timber used to support common rafters, often near the center of their span, and itself supported by posts, struts, or truss chords.

“Through purlins" pass over the top; "butt purlins" tenon into the sides of the principal rafters.
Large barns may have multiple purlin plates
PRINCIPAL PURLIN. In a roof frame, lengthwise timber connecting principal rafters and carrying common rafters.

Also called a "major-rafter minor-purlin system".

Secondary rafter

Principal rafter

Principal purlin
Principal rafters with common purlins and ridge purlin. Unlike a ridge beam, the ridge purlin rests atop the rafters.
Over den or Scaffold
Granary
Removal boards slip between battens to enclose grain bins

Typical Granary
Tally marks
Barnspeak in Everyday Lexicon
Interpreting the Evidence

- Rabbets in post show location of original door battens
- Ceiling for original granary
- Window to provide light to enclosed granary
- Mortise for original door post
- Post for enclosing original granary
- Nail holes in posts indicate there was a board wall
Mangers
Barn Catalogues
Names for Parts of Metal Stanchions

- Stanchions
- Stall
- Partition
- Gutter
- Trough
- Stall
- Partition
- Gutter
Where Do We Go From Here?

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