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## 1 Glossary

**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.** Lengthwise volume (parallel to the roof ridge) in a building divided into several such spaces, usually three. Cf. BAY.

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

**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 (*q.v.*) 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.

**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, beveled to follow the slopes of adjacent roof surfaces. The hip backing is thus convex, the valley backing concave.

**BAREFACED DOVETAIL.** Dovetail (*q.v.*) flared only on one edge, suitable for mortising as well as housing. See also HALF-DOVETAIL.

**BAREFACED TENON.** Tenon flanked by only one shoulder.

### KEY TO CROSS-REFERENCE TERMS

See also See a related, similar thing

Cf. Compare a related, dissimilar thing

Also Another name for the same thing

(*q.v.*) Which see

**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 timber. Cf. CHOKER HITCH.

**BAY.** Crosswise volume (perpendicular to the roof ridge) in a building, bounded by two bents 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 reared 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 joists; joist resting on the wall plates and carrying other joists. Cf. BRIDGING JOIST.

**BIRDSMOUTH.** 90-degree notch cut into the lower end of a rafter to fit the upper inside corner of the plate. Cf. CROWSFOOT.

**BISAIGUË.** Forged, double-ended cutting tool about the height of a worker, a mortise chisel at one end and a slick at the other and with provision for a wooden handle near the middle, for chopping and trimming mortises and smoothing work. Called a *twybill* in England.

**BLADE.** 1. In a scarf joint, the termination of one half of the joint so as to lap under the beginning of the other half. 2. In a cruck frame, one of the paired rafters.

**BOLSTER.** 1. Horizontal cap laid on the top of a post to shorten the span of the beam supported by it. 2. The part of the pier or abutment on which a bridge-truss rests. 3. In centering an arch, a crosspiece that connects the ribs and supports the voussoirs.

**BOLT-O'-LIGHTNING.** Scarf form with many abutments, whose jagged interface line resembles its eponym; used in heavy work. Also *Trait de jupiter*.

**BORING MACHINE.** Hand-cranked device with gears to drive a removable auger bit, used to bore large or deep holes, as in roughing out a mortise or drilling pegholes.

**BOW.** Vertical deviation from straight in the length of a timber. Also CROWN. See also CROOK and .

**BOX.** See HOUSING.

**BOXED HEART TIMBER.** Timber whose section includes the heart of the tree. Since checks generally do not cross the heart, such a timber rarely splits completely. Cf. FOHC.

**BOX FRAME.** Construction in which roof trusses are carried by a self-supporting structure of posts, tie beams and wall plates. Cf. CRUCK FRAME.

**BRACE.** Any oblique timber (permanent or temporary) that resists distortion of a frame. See also KNEE BRACE.

**BRACED FRAME.** Simplified timber frame with heavy posts and sills and light-framed floors and walls. Cf. FULL FRAME.

**BRACKET.** Block tenoned or pegged to one timber to support another. Also *cleat*.

**BREADTH.** See WIDTH.

**BREASTSUMMER** (spelling variants). 1. Beam spanning a wide opening in an external wall, such as over a shop front, and supporting a framed wall above. 2. Timber forming the sill of a jettied (*q.v.*) story (Hewett 1985).

**BRIDGING JOIST.** 1. Intermediate floor beam, often

parallel to the ridge, connecting one beam to another and carrying the ends of common joists. 2. A small beam or joist resting upon binding joists below and supporting boarding above. See also SUMMER BEAM. Cf. BINDING JOIST.

**BRIDLE.** 1. Open mortise-and-tenon end joint, such as at a rafter peak or sill corner, with one end of the mortise open (see TONGUE AND FORK). 2. An open mortise-and-tenon joint between the top of a post (the bridle) and a passing beam reduced in section to form the tenon.

**BROADAXE.** Wide-bladed axe with its edge usually beveled only on one side, and fitted with an offset handle for knuckle clearance. Used to hew timbers from logs or for similar shaping work.

**BUCKLING.** Irreversible bending of a timber as a result of a compressive force along its axis.

**BUILDER'S LEVEL.** Rotating telescope set on a tripod and used for leveling a foundation or sill timbers.

**BUTT** 1. The end of a log that in the living tree stood at the ground; generally, the larger end. 2. End of a timber cut at right angles to its length.

**BUTT JOINT.** Abutment (*q.v.*) of two timbers without penetration, kept in place by gravity or other timbers, or ironwork.

**BUTTRESS.** Reinforcing mass, typically masonry, built against a wall to counteract the thrust of an arch.

**CAMBER.** Hewn, sawn, natural or deliberately bent upward sweep in a beam or in its top surface, often incorporated into the lower chords of timber trusses, to resist deflection (especially in bridges) or to obtain aesthetic effects in the space below. Historic texts suggest adding 1 in. of camber in 20 ft., in anticipation of sag (*q.v.*). See also CRANK.

**CANTILEVER BEAM.** Projecting timber unsupported at one end.

**CARPENTER'S MARKS.** Incised matching marks at joints to identify uniquely matching parts in a frame, made during test assembly; indispensable to scribe rule (*q.v.*) method of layout. Other carpenter's marks may identify all members of one crossframe or wall assembly.

**CARRYING STICKS.** Sticks placed under a timber to provide easy handholds for carrying it by more than one person.

**CASEHARDENING.** Final stage of rapid seasoning or drying in which the surface of timber is in a state of compression and the core is in tension, making the wood prone to deformation when worked (J. Garvin 2003).

**CHAIN MORTISER.** Jigged power tool with chain-mounted cutters that plunge into the face of a timber to cut a mortise, fitted with a depth stop and other controls.

**CHAMFER.** Bevel cut at the long arris of a ti

right through or decoratively stopped before the ends. A bevel at the leading arrises of a tenon, to ease assembly.

**CHASE MORTISE.** 1. Lengthened mortise for swing-insertion of a tenoned member otherwise impossible to insert in an existing assembly, such as a brace or a joist added after assembly of main members. See also PULLEY MORTISE. 2. Mortise with one end angled to follow the slope of a member such as a brace.

**CHECK.** Separation of wood fibers along the rays, caused by the tension of differential radial and tangential shrinkage or by surface fibers of a timber drying first and attempting to shrink around an incompressible, still-wet center.

**CHECK BRACE.** Short, low-angle brace fitted behind a principal post in a bridge truss as reinforcement. It transfers back to a housing in the chord the horizontal component of the main brace load arriving on the front of the post. Also *kicker* (M. Graton, 1972).

**CHEEK.** The broad surface of a tenon; the corresponding surface of a mortise. The tenon shoulder is usually square to its cheek.

**CHOKER HITCH.** Noose sling configuration for lifting timber. Also *cow hitch*. Cf. BASKET HITCH.

**CHORD.** In a truss, the major uppermost member (*top chord*) or lowermost member (*bottom chord*). In a roof truss, the principal rafters serve as top chords, the tie beam as bottom chord.

**CLASPED PURLIN.** Purlin fitted under the common rafters (the principal rafter is reduced to match) and over the collar beam.

**CLOSE STUDDING.** Style of half-timbered (*q.v.*) construction with many studs, originally spaced apart about the width of a stud.

**COG.** Recess in one timber to accept full cross-section of the end of another timber; notch. See also HOUSING.

**COLLAR BEAM.** Horizontal member fitted between a pair of opposed rafters, used, depending upon position, to prevent sagging or spreading of the rafters. Often improperly called *collar tie*.

**COLLAR PURLIN.** In a roof frame, the central longitudinal beam running under the collar beams and usually supported by crown posts.

**COLUMN.** Preferred term for *post* in New World Dutch barn literature.

**COMMANDER.** See BEETLE.

**COMMON PURLIN.** In a roof frame, lengthwise member, regularly spaced in sets, connecting principal rafters and carrying the roof sheathing. See also PRINCIPAL PURLIN.

**COMMON RAFTER.** Inclined member, regularly spaced in sets, that supports the roof sheathing. See also PRINCIPAL RAFTER.

**COMPOSITE TRUSS.** Truss made of more than one material, such as one with timber compression members and iron tension members. Cf. COMPOUND TRUSS.

**COMPOUND JOINERY.** Connections whose timbers are cut at nonorthogonal angles on both face and edge, typically found in hip and valley roofs.

**COMPOUND ROOF.** Hip roof (outside corner) or valley roof (inside corner) formed where two adjacent roofs join at an angle.

**COMPOUND TRUSS.** Truss employing more than one standard configuration, such as a kingpost truss superimposed on a queenpost truss to support a simple gable roof.

**COMPRESSION.** The state of stress in which particles of material tend to be pushed together.

**CONVERSION.** Sawing, hewing or riving square timber from the log.

**COPE.** Shape the end of one element to fit the sectional profile of another, often in place of an inside miter.

**CORBEL.** 1. Block protruding from a wall to support the springing point of a masonry arch or a roof or floor member. 2. Heavy timber placed under the bottom chord of a wooden bridge at the piers and abutments to distribute concentrated stresses from live and dead loads. See also BOLSTER.

**CORNER CHISEL.** Chisel with two equal cutting edges forged at 90 degrees, struck with a mallet to clean out the corners of a mortise.

**COUPLE.** Pair of common rafters.

**CRAB.** In steeple work, an eight-armed flat roof frame that sits upon the octagon stage of a steeple, supporting the next octagon.

**CRANK.** Sharp change of angle in a timber, usually in a collar or tie beam higher at the center than at the ends on both upper and lower surfaces. See also CAMBER.

**CREEP.** Distortion from a load applied over a long period of time; can be accelerated by high temperature and humidity.

**CRIBBING.** Stack of alternating pairs of short timbers usually arranged on a square plan, used for temporary support of structure or timbers being worked on.

**CROOK.** Horizontal deviation from straight in the length of a timber. In a plank, *crook* is curvature of the width, *bow* (*q.v.*) curvature of the thickness. In a squarish timber, the two are indeterminate.

**CROSSCUT SAW.** Saw whose teeth are sharpened to a point and set outward to cut across the wood fibers by severing to left and right, so that the waste between falls out as dust. Cf. RIP SAW.

**CROSSFRAME.** Transverse assembly of wall timbers without rafters (two such defining a bay). See also BENT.

**CROSSGRAIN.** Grain not parallel to the long axis of a timber. The ultimate strength of a timber in bending is greatly dependent on the slope of its grain. Also *diagonal grain, sloped grain*.

**CROWN.** Vertical curvature in a timber's length placed upward in spanning members where the load will tend to straighten it.

**CROWN POST.** Central post of a roof truss that connects the tie beam to the collar or to the collar purlin.

**CROWSFOOT.** 1. Notch cut into lower edge of rafter to fit outside upper corner of plate. Cf. BIRDSMOUTH. 2. V-shaped mark indicating reference point or line in layout.

**CRUCK FRAME.** Early timber frame type with each crossframe made up of two opposed and collared timbers, usually curved, set up as an arch or A-frame that rises from the ground or a short foundation. Each half of a cruck is called a blade (*q.v.*); a matched pair of blades is often cut from the same tree. Cf. BOX FRAME.

**CRUSHING.** Permanent deformation resulting from compression.

**DAISY WHEEL.** Compass-drawn form in building geometry comprising equal-diameter intersecting circles, useful to determine proportions of buildings. Symbol of uncertain meaning occasionally found carved into south-facing beams and associated with the sun (day's eye).

**DAP.** To house in (usually) a beam; the housing (*q.v.*) itself.

**DATUM.** Reference line or plane indicated on timber.

**DEAD LOAD.** Building weight (roof, floors, walls, etc.).

**DEFLECTION.** Movement of structure under load.

**DEPTH.** 1. Vertical dimension of a beam or rafter. Also *thickness*. 2. Sectional dimension of a post measured perpendicular to the wall; otherwise, the larger dimension of a post.

**DIAGONAL GRAIN.** See CROSSGRAIN.

**DIMENSION LUMBER.** Planed timber sold according to its nominal size, usually less than 6 in. thick.

**DIMINISHED HAUNCH.** See HAUNCH.

**DIMINISHED SHOULDER.** Angled shoulder found at certain mortise and tenon connections to provide good bearing and least material loss in the housing, while offering cutting advantages; sometimes confusingly called *diminished haunch*.

**DISTRIBUTED LOAD.** Load such as from a floor distributed over the length of a beam by joists, or as from a wall distributed over the length of a sill by studs. Cf. POINT LOAD.

**DOG.** Double-ended iron holdfast for workpiece when hewing or for other operations. Also *cramp-iron* or *staple*.

**DORMANT.** 1. Large horizontal beam that supports beams of a lesser size; a summer beam. 2. Sleeper (*q.v.*).

**DORMER.** Aperture or window of variable shape rising upright from the surface of a roof and having its own roof. According to its extent and form, a dormer may be termed *eyebrow, doghouse, roundhead, shed* or *running*.

**DOUBLE-CUTTING.** Scribing method for irregular surfaces in which tenon shoulders are cut twice. Tenons are provisionally shouldered short of their design length, then inserted into their mortises and the shoulders scribed off the irregular face of the mortised piece to give lines for the second and final shoulder cut.

**DOUBLE FLOOR.** Built-up floor system comprising substantial binding joists (*q.v.*) carrying shallow bridging joists (*q.v.*) above and shallower ceiling joists below, finally covered by finish flooring on top and finish ceiling beneath (Tredgold, rev. Hurst, 1880). Cf. FRAMED FLOOR, SINGLE-JOISTED FLOOR.

**DOUBLE RAFTERS.** Principal rafters stacked one above the other, usually in a kingpost truss, intended to share compressive loads. The upper rafter, terminating at the eaves, supports purlins and maintains the roof plane. The lower rafter, seated inboard of the end of the tie beam, obtains security against decay.

**DOUBLE TENON.** Two tenons cut in line on the end of a wide or deep member. A triple tenon is possible. Cf. TWIN TENON.

**DOVETAIL TENON.** 1. Lap tenon shaped like a dove's spread tail to fit a corresponding notch. See also BAREFACED DOVETAIL. 2. Central through tenon flared on one edge only and used with a wedge on the unshaped edge to form a strong tension joint.

**DRAGON BEAM.** Horizontal timber bisecting the angle formed by two wall plates or adjacent jetty beams, used to carry the foot of a hip rafter or the inner ends of joists from the adjacent walls, or both; sometimes framed at its inner end into a short diagonal timber joining the plates, the *dragon tie*.

**DRAWBORE.** Traditional fastening technique in which the peghole in the tenon is deliberately offset from the peghole in the mortise to draw a joint tight when assembled and fastened with a tapered pin. Also *draught*.

**DRAWKNIFE.** Large knife blade with bent tanged handles at each end so that the knife can be pulled with both hands toward the user; for shaving pegs and shingles, trimming and chamfering.

**DRIFT PIN.** Tapered iron pin with enlarged head used to bring joints home and hold them temporarily during assembly, to be removed and replaced by a permanent wooden pin. Also *hook pin*.

**DROP.** In general, any ornamental pendant; in particular, the square-turned or carved termination to the lower end of a second-story post in a framed floor overhang.

**DROPPED TIE BEAM.** Transverse beam from wall post to wall post lying below the level of the plate. Characteristic of Dutch-American domestic framing; in English settlement areas it marks an important stage in evolution of US barn framing away from English patterns. **EAVES** (singular and plural). The drip edge of a roof, often overhanging the wall.

**EDGE-HALVED.** Lengthwise timber joint divided through its thickness; a class of scarf joints. Cf. **FACE-HALVED**.

**ENGLISH TYING JOINT.** Terminus of a base-tied truss over a jowled post, wherein the foot of the principal rafter is tenoned to the top of the tie; the tie is simultaneously mortised to the teazle tenon (*q.v.*) on the jowl (*q.v.*) of the post and lap-dovetailed over the top of the plate; and the plate is mortised over a second tenon formed in the outward part of the jowled post.

**EXTRADOS.** Upper or convex surface of an arch, the *intrados* being the lower or inner surface.

**EXTREME-FIBER STRESS.** Maximum compression in the concave edge and tension in the convex edge (the extreme fibers) of a member in bending without failure.

**FACE-HALVED.** Lengthwise timber joint divided through its width; a class of scarf joints. Cf. **EDGE-HALVED**.

**FASCIA.** Generally, a face board to cover the exposed ends of joists or rafters. In neoclassical trim, the horizontal band in the cornice assembly, set plumb to cover the edge of the soffit (*q.v.*).

**FEWING** (*fake + hewing*). Hewing a new surface on a sawn or planed timber to make it appear hewn (Uwe Tobies, 2011).

**FIRE CUT.** Angle cut on the end of a beam or joist inserted into a masonry wall to allow the timber end to release easily in a fire, thus sparing the wall from being pulled over by cantilevered burnt-through timbers.

**FISH, FISHPLATE.** Reinforcing member applied over a break in a timber or an end joint between two timbers; usually applied in pairs and bolted right through.

**FLOOR LAYOUT.** Full-scale chalk layout on shop floor of plan view or elevation (as appropriate) for given scribe rule assembly—wall, crossframe, roof plane, etc.

**FLYING PLATE.** In a framed overhang, a beam set outside the wall plane and forming a solid base for the cornice elements and sometimes for the feet of common rafters; it can be continuous or interrupted (by tie beams) according to the framing system. Cf. **PLATE**.

**FOHC** (free of heart center). Timber sawn to exclude the heart can in theory be seasoned without checking.

**FOOTING.** Sub-foundation.

**FOREBAY.** Overhanging bay or aisle (*q.v.*) of a barn,

cantilevered up to 8 ft., or if supported with posts or columns up to 18 ft., usually on the eaves side, sometimes on more than one wall of the same barn. Forebays can be open, half-open or closed according to whether foundation walls extend to the end of the forebay on one or both ends.

**FORELOCK BOLT.** Unthreaded bolt headed at one end and pierced at the other to admit a wedge or cotter; to prevent withdrawal, the wedge is curled over after driving (thus the name).

**FRAMED FLOOR.** Double floor (*q.v.*) with binding joists framed into heavy girders (Tredgold, rev. Hurst, 1880). Cf. **SINGLE-JOISTED FLOOR**.

**FRAMING CHISEL** (US). Long, rectangular-section heavy-duty socket-chisel typically 1½ or 2 in. wide, handled for striking.

**FRAMING SQUARE.** L-shaped metal graduated measuring tool with legs fixed at 90 degrees, used for layout and checking of angular lines. Most framing squares have a *blade* 24 in. long by 2 in. wide and a *tongue* 16 in. long by 1½ in. wide. Also **STEEL SQUARE**, **RAFTER SQUARE**.

**FREE TENON.** Tenon cut as a separate piece and used, via appropriate mortises, to join two timbers face to face, end to end or end to face. See also **SPLINE**.

**FROE** (**FROW**). Stout, flat-bladed, handled tool for riving pegstock as well as shingles, clapboards or sections for furniture.

**FULL FRAME.** See **TIMBER FRAME**.

**GABLE ROOF.** Double-sloping roof that forms an inverted V.

**GAIN.** Sizing (*q.v.*) reduction at timber surface in joinery area; any shallow housing, as for a hinge. Cf. **HOUSING**.

**GAMBREL ROOF.** Double-pitched, double-sloping roof with the lower slopes steeper than the upper slopes; resembles the gable roof but with each leg of the inverted V broken into two pitches.

**GIB.** Packing piece in a wedged slot, part of early adjustable hardware for an iron-reinforced tension connection.

**GIN POLE.** Lifting device composed of a single pole, stayed by guy lines, from which lifting tackle is hung.

**GIRDER.** Major timber spanning between sills or other heavy beams to carry floor joists.

**GIRDING BEAM.** See **BINDING JOIST**.

**GIRT.** Horizontal timber joining wall posts at a level somewhere between sill and plate (Hewett, 1985). In the US, a *wall girt* runs parallel to the ridge, a *bent girt* perpendicular; either can support the edge of a floor frame. Cf. **INTERTIE**.

**GRAIN.** Pattern of growth rings, rays and other wood structure elements revealed by conversion from the tree.

**GREEN WOOD.** Wood freshly cut, not dried or seasoned.

**GROUNDSILL.** Sill, originally laid directly on ground.

**GUNSTOCK POST.** A post deeper at the top to provide more wood for intersecting joinery, and usually obtained by inverting the timber from its grown position to take advantage of butt taper or swell. Cf. JOWL.

**GUY.** Rope or cable, etc., fixed to ground or structure to stabilize a lifting device or fixed structure, usually tall. From Fr. *guier*, to guide (the object being raised).

**HAFT.** Tool handle such as of a hammer or axe. *Helve*.

**HALF DOVETAIL.** See BAREFACED DOVETAIL.

**HALF LAP.** End joint or crossing, the latter called a halving, in which two timbers are let in to each other to half their depths.

**HALF-TIMBERED.** 1. Evolved building type in which wall timbers are spaced out, to be filled in with other materials. 2. Closely studded or otherwise elaborated versions of the type. See NOGGING, WATTLE AND DAUB. Cf. STAVE CONSTRUCTION.

**HALVING.** See HALF LAP.

**HAMMER BEAM.** 1. Interrupted tie beam projecting from the top of a wall, supported by a brace and supporting a hammer post. A hammer beam roof frame permits a large roof span made of relatively short timbers. 2. Oblique tie in raised bottom chord truss.

**HAMMER POST.** Post in hammer beam roof frame rising from hammer beam to principal rafter. If *pendentive*, post is supported by a tenon at the hammer beam end rather than tenoned into the top of the beam.

**H.A.P.** See HEIGHT ABOVE PLATE.

**HARDWOOD.** Wood of certain deciduous trees, e.g., oak, beech, ash and the like. Cf. SOFTWOOD.

**HAUNCH, HAUNCHED TENON.** Retained part of a tenon that would otherwise be removed to fit a closed mortise at the end of a timber. Haunch, which may be diminished, fits a groove and helps preserve alignment of the members without unduly weakening the end of the mortise.

**H-BENT.** Crossframe made up of floor-to-roof posts connected by a heavy, braced tie beam, usually bridging the taller central aisle of a Dutch or other three-aisle barn.

**HEADER.** 1. Floor member running across the joists at an opening, as for a staircase, and supporting the ends of cut joists. 2. Wall member bridging the opening for a door or window and carrying any cut studs. 3. Roof member bridging the opening for a chimney, dormer or skylight and carrying any cut rafters.

**HEARTWOOD.** The inner, nonliving part of the tree, as a rule the more durable portion.

**HEEL.** 1. Lower bearing of a rafter or joist. 2. Outside corner of a framing square.

**HEIGHT ABOVE PLATE.** Height above plate of top of rafter at projected wall line. Also *obholz*, *H.A.P.*

**HEW.** Shape wood with an axe, usually to convert a log to a timber.

**HIP RAFTER.** In a roof frame, the rafter that follows the line of the hip, typically backed to follow the slopes of the adjacent roofs.

**HIP ROOF.** Compound roof occurring where two roof slopes meet over an outside corner. Cf. VALLEY ROOF.

**HOG.** Lengthwise deformation of a timber supported in the middle and (over)loaded at its ends. Cf. SAG.

**HOISTING BEAM.** Projecting beam from a gable peak for lifting materials to upper floors of a building.

**HOLLOW CHISEL MORTISER.** Jigged power tool with auger bit turning inside a square hollow chisel that plunges into the face of a timber to cut a mortise, fitted with depth stop and other controls.

**HOOK PIN.** See DRIFT PIN.

**HORIZONTAL SHEAR.** Shear along the grain resulting when a beam is loaded in bending.

**HOUSING.** Shallow reduction or cavity to receive the full section of a timber end for load bearing. Often but not always combined with a standard mortise to add bearing area and secure the connection via the tenon. Can be blind, stopped or through. Cf. GAIN. See also COG, DAP.

**HUNDEGGER.** Proprietary name for computer-numerical-controlled industrial joinery machine designed to handle large timbers.

**INFILL.** 1. Insulation placed between studs inside timber-framed walls (see NOGGING, WATTLE AND DAUB). 2. Studding placed between major posts to support interior and exterior finish.

**INTERRUPTED.** Said of a wall plate (most common), sill or tie beam made discontinuous by frame design

**INTERTIE.** 1. A tie beam. 2. An old name for any beam tenoned between posts, usually now called a girt.

**INTRADOS.** Inner or lower surface of an arch. Cf. EXTRADOS.

**JACK RAFTER.** Roof framing member that lies in the common pitch and terminates at the hip or valley rafter. In a valley system, the jack runs from the ridge down to the valley; in a hip system, it runs from the eaves up to the hip. In general, any rafter shortened from its full run between ridge and plate is called a jack.

**JAMB.** Side of any opening such as a door or window.

**JAMBLESS FIREPLACE.** Hearth with smokehood above, proud of the wall, in early Dutch settlement houses.

**JETTY.** 1. Cantilevered overhang of the floor of an upper story. 2. Cornice (regional US). Also *Jet*.

**JOGGLE.** Projection at the meeting of members to keep them from sliding on one another, frequent on truss posts.

**JOINERY.** The work of connecting timbers using wood-work joints; the joints themselves.

**JOINT.** The connection of two or more timbers; to make one (UK).

**JOIST.** Relatively small timber, usually spaced regularly in sets to support a floor or ceiling.

**JOURNEYMAN.** In traditional trades training, stage beyond bound apprenticeship that allows worker to travel and accept employment.

**JOWL.** Local step or flare near end of post or beam to accommodate joinery. Cf. GUNSTOCK POST.

**JUGGLING.** In hewing, striking a log crosswise at wide intervals and then splitting off the chunks in between, to remove the bulk of the waste before broadaxe work. Also SCORING.

**KERF.** Space left by the passage of a saw blade.

**KERFING.** 1. Making a series of shallow sawcuts to hasten the removal of a section of wood. 2. Sawing along the abutments of an assembled joint to improve the fit.

**KEY.** Small element, usually wedge-shaped, used to lock a joint or, if a shear key, to prevent sliding of one member over another.

**KEYED BEAM.** Two or more beams laminated together with crossgrain keys let in between the beams to prevent slippage during bending.

**KICKER.** See CHECK BRACE.

**KINGPOST.** In a kingpost truss, the central, vertical member extending from the tie beam (or lower chord) to the peak and receiving the upper ends of the rafters (or upper chords). If *pendentive*, post extends below the tie beam and may be decorated. Cf. Queenpost.

**KNEE.** Alternative term for short brace, but often implying a naturally curved piece, usually taken from the base-swell of certain trees, that presents long grain, if of unequal length, to both timbers being braced. Knees are termed hanging (if beneath the beam), standing (if above the beam) and lodging or lying (if bracing beam to beam).

**KNEE BRACE.** Relatively small, short timber framed obliquely between two members at right angles to stiffen their connection.

**KNEE RAFTER.** Crooked rafter with sharp bend near the foot used to gain wall height or move the rafter foot inward on the tie beam.

**LAP-DOVETAIL JOINT.** Dovetail housing cut into the surface of one timber to receive a dovetail tenon formed on the end of another. A very early connection, particularly for braces, which persisted late in New World Dutch barns.

**LAP JOINT.** Similar to the half-lap joint, but the parts are not necessarily housed to half their depths.

**LAYOUT.** 1. Outlining joint on a timber before it is cut. 2. Arranging timbers in a determined pattern for marking.

**LEAN-TO.** Shed-roofed addition to a building, joined into the main frame. See also OUTSHOT.

**LEDGE, LEDGER.** Band of timber fastened to or let into the face of studs or posts to support the outer ends of floor joists. Also RIBBAND.

**LEVEL MARK.** In scribe rule (*q.v.*) framing, small cross-grain flat on each principal timber, marked by an elongated X, used to level the timber during layout.

**LINING (v.).** Striking reference lines (sometimes called *datums*) on timbers, from which to lay out joints or joinery surfaces.

**LINTEL.** Horizontal beam over a door or window opening. See also HEADER.

**LIVE LOAD.** All load other than the permanent weight of a structure, including people, furnishings, snow, wind, earthquake, etc. Cf. DEAD LOAD.

**LOAD.** Force imposed on a structure.

**LUTHERN.** Archaic term for dormer window, frequently encountered in old records; from Fr. *lucarne*, opening.

**MAIN BRACE.** Segment of upper chord in queenpost truss.

**MAJOR-MINOR RAFTER SYSTEM.** Dutch roof-framing system without base tie but with relatively low-lying dovetailed collar beam at major rafters, clasping principal purlins that, together with a clasped ridgepole, support intermediate minor rafters.

**MALLET.** Striking tool of wood, rawhide, steel or synthetic material, weighing generally between 24 and 40 oz.

**MARRIAGE MARKS.** Marks incised in a timber to indicate its proper placement in the frame when matched to identical marks on an adjoining timber. By extension, any marking system to aid assembly or reassembly of individually fitted joints.

**MAST.** In framed spires, a central timber that anchors the spire rafters at their apexes and moves the center of gravity of the spire inward and down. Masts often exceed 45 ft. and may be pendant, compressing the rafters, or clasped by partner timbers (nautical tradition) to stiffen the spire.

**MITER.** Equal division of the angle formed by two intersecting members; the act of dividing the angle.

**MODULUS OF ELASTICITY.** Measure of stiffness of a material, the ratio of stress (force per unit area) to strain (deformation).

**MOMENT.** Load that imparts torque or rotation, quantified as the product of a force multiplied by the distance over which it acts.

**MOMENT OF INERTIA.** Measure of the resistance of a body to angular acceleration about a given axis and the section property used to gauge the stiffness of a beam in bending. For rectangular members of breadth  $b$  and depth  $d$ , the moment of inertia  $I$  taken through the centroid

(center of mass of the section) is quantified by the formula  $I = bd^3 \div 12$ .

**MORTISE.** In general, a rectangular cavity into which a tenon (or another object such as a lock) may be inserted.

**MORTISE-AND-TENON JOINT.** The end of one timber, usually reduced in section to form the tenon, inserted into a corresponding cavity, the mortise, in the face of another timber, and most often pinned across, though sometimes otherwise secured.

**MUD AND STUD (UK).** 1. Late English framing method using relatively few and light framing members infilled with wattle and daub. 2. Notorious timber framers' pub in the East Midlands.

**MULLION.** Vertical division in a window opening.

**NAILER.** Small horizontal wall timber for fastening vertical boarding, a typical element in barns and outbuildings.

**NOGGING.** Infill in early framed walls, often brick. See also WATTLE AND DAUB, HALF-TIMBERED.

**NOMINAL SIZE.** Sawn or hewn timber dimensions before sizing (*q.v.*); actual dimensions may be larger or smaller than nominal.

**NORMAL ASSEMBLY.** See REVERSED ASSEMBLY.

**NOTCHED LAP JOINT.** Lap joint with interference surface cut to prevent withdrawal of the tenon, found in very early braces.

**OBHOLZ.** See HEIGHT ABOVE PLATE.

**OGEE.** Reverse curve form, as for a brace or molding.

**OUTSHOT.** Lean-to (*q.v.*) area added to a building, usually an aisle.

**OVERHANG.** Projection of second story beyond the first (see JETTY), or projection of roof over wall.

**PACKING PIECE.** 1. Short piece of material used to fill the empty space in a mortise previously elongated to allow insertion of a tenoned member into an existing assembly. 2. In cruck framing, the cleat set on the back of a cruck blade to carry a purlin.

**PANEL POINT.** Intersection of members in a truss.

**PARBUCKLING.** Lifting a beam in a basket hitch (*q.v.*), using ropes with one end tied at or above the intended height and the other end pulled from that height, giving a 2:1 mechanical advantage.

**PARGETING, PARGING.** External plastering.

**PARTNERS.** Pair of horizontal beams, often lying at right angles to a second similar pair, all four to secure a mast or frame an opening.

**PASSING BRACE.** Long brace half-lapped over other timbers, sometimes from plate to sill (Hewett 1962).

**PEAVEY.** Pointed tool with long stout handle and forged side hook, used to roll logs or heavy timbers.

**PEG.** Wooden pin typically  $\frac{3}{4}$ -in. dia. and larger, usually of oak or other tough hardwood, formerly riven and

shaved, now usually turned, and used to fasten timber joints, particularly the mortise-and-tenon joint. Bridge builders distinguish tapered *pegs* from cylindrical *pins*: the latter are used particularly at shear connections.

**PENDANT.** Ornamental element of jetties (*q.v.*), hammer posts (*q.v.*) or kingposts (*q.v.*), suspended or integral. Also *Drop*.

**PENTICE.** Narrow roof projecting from a wall over a door or window to protect it from the effects of weather.

**PERSUADER.** See BEETLE.

**PIÈCE SUR PIÈCE EN COULISSE.** Framing with horizontal infill members fitted to grooved posts, common in Canada (Fr. for piece on piece in groove).

**PIKE POLE.** Long pole, pointed with a sharpened spike, used to raise frames. These tools were known as early as the 15th century, when they were called *butters*.

**PIN.** 1. See PEG. 2. A pin of uniform diameter, usually 1 or 2 in., used to transfix timber, join members or resist flexure when the goal is to maximize the uniform bearing area between timber and fastener, notably in bridge trusses.

**PITCH.** See ROOF PITCH.

**PIT SAW.** Two-person, large-toothed rip saw (*q.v.*), open or framed, 6 to 8 ft. long and worked by a topsawyer and a pitman, with the log over a pit or on one or two trestles.

**PLANCIA, PLANCIER.** The soffit of a box cornice, probably from F. *plancher*, floor.

**PLANK FRAME.** Early frame style with solid vertical plank walls tenoned, rabbeted or applied to sill and plate, in some cases omitting wall posts and braces.

**PLATE (UK).** The sill or the subsill; the sole plate.

**PLATE (US).** In normal position, the most important longitudinal timber in a frame. It ties the bents together at their tops and simultaneously stiffens and connects the wall and roof planes while providing a base for the rafters. Also *top plate*, *wall plate*. Cf. FLYING PLATE.

**PLUMB.** Vertical; perpendicular to the ground.

**PLUMB BOB.** Cast lead or improvised weight attached to stringline for sighting perpendicular lines. Also *plummet*.

**POINT LOAD.** In engineering, load concentrated at a point, such as a post landing on an unsupported beam. Cf. DISTRIBUTED LOAD.

**POST.** Vertical or upright supporting timber. See STORY POST, PRICK POST. Cf. BEAM.

**POST AND BEAM.** 1. Structural system made up primarily of vertical and horizontal members. 2. Such a system in which floor and roof loads are carried by principal timbers simply butted together and fastened with structural hardware. 3. Structural system of heavy timbers connected by woodwork joints. See TIMBER FRAME.

**PRICK POST.** Post of single-story height; an intermediate post framed between principal posts (Benjamin, 18

**PRINCIPAL PURLIN.** In a roof frame, lengthwise timber connecting principal rafters and carrying common rafters. See also CLASPED PURLIN, COMMON PURLIN, PURLIN, RIDGE PURLIN.

**PRINCIPAL RAFTER.** In a roof frame, a large inclined timber carrying a substructure of purlins and common rafters, usually but not always placed over a principal post.

**PULLEY MORTISE.** 1. Long mortise found at the lower edges of the lower chords of roof trusses, where ceiling joists were evidently swung in after erection of the trusses. See CHASE MORTISE.

**PUNCHEON.** Short or intermediate post to support a beam. Possibly related to Fr. *poinçon*, kingpost.

**PURLIN.** Longitudinal member in a roof frame lying in or parallel to the roof plane.

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

**PYTHAGOREAN THEOREM.** In a right triangle, the theorem that the sum of the squares of the sides is equal to the square of the hypotenuse ( $a^2 + b^2 = c^2$ ). Used to calculate rafter, knee-brace and other lengths treatable as part of a triangle. See THREE-FOUR-FIVE.

**QUEENPOST.** In a truss, one of a symmetrically placed pair of vertical members standing on the tie beam or lower chord and separated at their upper ends by a straining beam (*q.v.*). In a barn, queenposts may be full height and connect to rafters, the collar beam or purlin plates. Cf. KINGPOST.

**QUEEN STRUTS.** Pair of struts extending from tie beam to collar beam in a truss-like assembly. Sometimes confused with queenposts, the tension members in a queenpost truss.

**RABBET.** Open (one-sided) groove cut at an arris.

**RABBET PLANE.** Handplane with cutting edge exposed completely across the sole, and thus able to cut up to an inside corner; used to trim tenon cheeks and shoulders, to level material across the grain and to form or trim rabbets.

**RACE KNIFE.** Marking tool with curled blade used to make carpenter's marks.

**RACK.** Action of straining or winching a framework to bring it into square or plumb; the opposite action by a force of nature.

**RAFTER.** In a roof frame, any inclined member spanning any part of the distance from eaves to peak. See COMMON RAFTER, JACK RAFTER, PRINCIPAL RAFTER, RAFTER FOOT, RAFTER HEEL, RAFTER TOE.

**RAFTER FOOT.** The lower end of a rafter, usually framed into a plate or a tie beam, rarely into a post.

**RAFTER HEEL.** Inboard end of a rafter foot.

**RAFTER HOLE.** Unexplained, partly bored hole sometimes found near rafter foot in old work, surmised to locate rafter on a template for cutting.

**RAFTER PEAK.** Point where tops of opposed rafters would meet if mitered. A series of such points forms a ridge (*q.v.*).

**RAFTER RUN.** Horizontal distance covered by pitched rafter.

**RAFTER SQUARE.** See FRAMING SQUARE.

**RAFTER TOE.** The outboard end of a rafter foot.

**RAISED BOTTOM CHORD.** Uncommon species of truss in which bottom chord, normally base-tied, is raised to join rafters higher up, providing space for domed ceilings beneath while employing special tension bracing between rafter feet and chord.

**RAISING (A FRAME).** Erecting the bents, roof trusses and other subassemblies of a frame and fastening them. Also REARING.

**RAKE.** In a gable or gambrel roof, the edge of the roof as seen at the gable end. Also BARGE BOARD.

**RAKING STRUT.** In a roof truss, an inclined member fitted between the tie beam and the principal rafter.

**REACTION.** A force pushing back in response to a load.

**REACTION WOOD.** Stressed fibers in leaning trees compensating for uneven forces during their growth. Such trees may bend during conversion (*q.v.*).

**REARING (A FRAME).** UK term equivalent to RAISING.

**REEVE.** To thread line through pulley blocks.

**REFERENCE FACE.** Surface of a timber chosen to measure from for joint or frame layout, often the top of a beam or the outside of a post. For most purposes, a secondary reference face must be chosen adjacent to the primary face. See also BEST FACE, UPPER FACE.

**RELISH.** 1. In a mortise cut near the end of a timber, material the width and depth of the mortise remaining between the mortise-end and the end of the timber. 2. In a tenon, material between the peghole and the end of the tenon, equal in cross-section to the path of the peg through the tenon.

**RETURN.** In a building, continuation of its elements, typically the moldings, at an angle; in neoclassical trim, the return is a vestige of the broken pediment.

**REVERSED ASSEMBLY (UK).** For a timber frame with continuous top plate, raising procedure in which the cross-frames or bents including tie beams are raised first and the top plates are laid last. Normal assembly first raises the sidewalls including the plates and lays the tie beams over the plates, as for the English tying joint (Cecil Hewett, 1962). American frames with dropped tie beams are raised by "reversed assembly."

**RIBBAND.** See LEDGE.

**RIDGE, RIDGE PIECE, RIDGE TREE.** In a roof frame, the continuous longitudinal timber at the peak of the roof to which the rafters and sometimes wind braces are attached; ridges are often five-sided or otherwise nonorthogonal in section to allow square connections.

**RIDGE PURLIN.** In a roof frame, a ridge member, continuous or interrupted by rafter apexes, lying in notches or trenches on one side of the roof; if continuous, sometimes itself trenched where it crosses a principal rafter.

**RIP SAW.** Saw whose teeth are designed to cut parallel to the wood fibers, each tooth a small chisel to shave off lengthwise a short bundle of fibers that falls out as stringy waste; the teeth are set left and right merely for clearance. Cf. CROSSCUT SAW.

**RIVE.** To split wood along the grain thus avoiding any slope of grain in the workpiece, for maximum strength in a given cross-section; pegs, ladder rungs and chair parts were formerly riven and shaved rather than sawn.

**ROOF PITCH.** Inclination of a roof to the horizontal, usually given as inches of rise per foot of run. For example, a roof inclined at 45 degrees has 12 inches of rise for each foot of run and is therefore called a “twelve-pitch” roof. Formerly, ratio of rafter length to building span or ratio of height of ridge above plates to building span.

**ROOF TRUSS.** See TRUSS.

**ROUTER.** Hand or power tool designed to produce or to level grooves and housings along and across the grain; the power tool can also be used as a molding plane.

**SAG.** Lengthwise deformation of a timber supported at its ends and (over)loaded at its middle. Cf. HOG.

**SAINT ANDREW’S CROSS.** X-bracing. Also *saltire*.

**SALLY.** Pointed end of a scarf-half; a projection.

**SCAFFOLD.** 1. Temporary structure for access to sides of a building. 2. Loosely lodged poles or beams over the center aisle or bay of a barn, on which hay or stocks of grain could be stored.

**SCANTLING.** 1. The cross-section of a timber, as found in a table of scantlings, together with length. 2. Any small piece of wood.

**SCARE.** To join two equal-section timbers in their length to make a longer beam; the joint so used. There are many variations in the form of scarf joints, such as *bladed*, *bridled*, or *stop-splayed*.

**SCHNAF.** Slang for an inch and a half (J. Sobon, 1989).

**SCISSOR(S) TRUSS.** Rigid assembly of timbers framing a gable roof, comprising upper chords (rafters) sloped at the roof pitch and lower chords (scissors) pitched to cross one another under the roof peak and then run on to join opposing rafters in midspan. Rafter peak and scissor crossing are typically joined by a short post.

**SCORING.** See JUGGLING.

**SCOTCH.** 1. Slight surface cut or gash, especially a score made to keep tally; line on the ground in the game hopscotch. 2. Shallow, angled notch in which a shore is fitted to lift or hold a building during raising or repairs.

**SCRIBE.** In general, to mark a timber by scratching a line with a sharp instrument; specifically, to use dividers to transfer a profile to be cut—often irregular—from one surface to another.

**SCRIBE RULE.** General term for layout systems where each timber is custom-mated to its neighbors. The process requires setting out all the timbers for a given assembly in a framing yard or on a floor, positioned relatively as they will ultimately rest in the building. Plumb and level references are essential to most methods. Cf. SQUARE RULE.

**SEASONED WOOD.** Wood dried over time to equilibrium moisture content with its atmosphere.

**SECTION MODULUS.** The section property used to quantify the strength of a beam in bending; for rectangular sections, given as  $S = bd^2 \div 6$ .

**SET.** 1. Permanent deformation in a timber caused by long-term loading, gravity or both. 2. Displacement of saw teeth left and right from sawplate to create cutting clearance. Relatively more set is required for green wood.

**SHAKE.** Separation of growth rings in a timber, a structural defect normally developed during the growth of the tree.

**SHARED MORTISE.** Mortise accepting two pieces, commonly a brace and a wall nailer (*q.v.*).

**SHEAR.** State of stress wherein particles of material tend to slide relative to each other; the force inducing such stress. Vertical (cross-grain) shear loads also impart horizontal (long-grain) shear stress.

**SHEAR BLOCK.** Wood block dapped (*q.v.*) partially to adjoining parallel laminae in a built-up chord, designed to resist shear between the two members or to transfer load around a discontinuity such as a scarf, and properly oriented parallel to the grain, so that shear block end grain bears upon chord end grain.

**SHEAR KEY.** Wood block oriented perpendicular to (across) the grain. Easier to assemble, and can be tightened if wedge-shaped, but not so resistant to compression as a shear block (*q.v.*).

**SHEATHING.** A covering of rough boards or sheet goods on exterior walls or roofs, usually itself covered by an additional weatherproof layer of material.

**SHED ROOF.** A monoplanar roof sloping in one direction.

**SHOULDER.** 1. In a mortise-and-tenon joint, the element of the tenoned member usually perpendicular to the tenon cheek, and which lies against the face of the mo

tised member; there can be as few as one and as many as four shoulders on the tenoned member. When a shoulder angles back as it rises from a tenon cheek, it's said to be *diminished*. When it angles forward, it's said to be *sallied*.

2. In a housing (*q.v.*), the lower bearing surface.

**SHRINKAGE.** Reduction in section and length of a timber as it dries. Sectional shrinkage is analyzed into *tangential* (shortening along the rings) and *radial* (shortening along the rays).

**SILL.** Horizontal timber that rests upon the foundation and links the posts in a frame; usually fastened to the foundation.

**SINGLE-JOISTED FLOOR.** Floor framed with one set of joists to which flooring above and ceiling below are directly attached. Cf. **DOUBLE FLOOR**, **FRAMED FLOOR**.

**SIZING.** Planing hewn or roughsawn timber to uniform section, by hand locally at the joints, or by machine for the whole timber.

**SKIVE.** Scarf two members on a single oblique line.

**SLEEPER.** 1. Supporting timber at or near the ground to support joists, or a joist itself. 2. Joist (usually first-floor) made from the log by hewing or sawing a flat (US). 3. Heavy supporting beam to distribute load in bridges, towers and ships. 4. Cross-tie under a railway (UK).

**SLICK.** Large, long, heavy chisel with a blade as much as 4 in. wide, fitted with a handle meant to be gripped with both hands, used for trimming and surfacing of all kinds.

**SLING BRACE.** Brace from post to principal rafter or collar, interrupting a tie beam at plate level.

**SOFFIT.** 1. In general, the underside. 2. In neoclassical trim, the cornice element set level and joined to the fascia to form a band under the extremity of the eaves. 3. Trim piece covering the undersides of overhanging rafters for a roof without cornice.

**SOFFIT TENON.** Single-shouldered horizontal tenon with lower cheek coincident with bottom surface of beam.

**SOFTWOOD.** The wood of conifers or evergreens, such as pine, spruce, Douglas fir and the like. Cf. **HARDWOOD**.

**SOLE PIECE.** Short beam at top of masonry wall to carry the foot of the rafter and the ashlar piece; a sort of interrupted tie beam for intermediate roof crossframes.

**SOLE PLATE (UK).** Sill.

**SOULACE (UK).** Straight brace rising from rafter to collar.

**SPAN.** In a roof frame, the horizontal distance covered by a rafter; in a beam, the unsupported distance from support to support.

**SPANDREL.** Triangular space between a knee brace or arch brace and its adjoining members.

**SPAR.** Common rafter (archaic, Ger. *Sparren*).

**SPINE BEAM.** Beam following midline of building, such as a ridgepiece.

**SPIRAL GRAIN.** In the log, the disposition of the fibers twisted like a corkscrew around the pith of the tree (and normally visible in the bark); in the timber, distinctly sloped grain as displayed by the direction of the rays. Such timbers tend to twist as they dry and are weaker in ultimate bending than straight-grained examples.

**SPIRE.** Tall, usually slender structure tapering to a point and rising from the roof of a tower or turret. Uppermost stage of a steeple.

**SPLAY.** 1. In a vertical member, divergence from upright. 2. In a scarf joint, a cut through the depth or breadth of the timber not parallel to the original surface.

**SPLINE.** 1. A relatively thin piece of material fitted to full-length grooves in the edges of planks, used for alignment and load sharing; a feather. 2. A stout piece of material, comparable in section to a tenon, used particularly to join beams to posts in three-way and four-way joints where individual mortises cut for each entering tenon would weaken the post fatally. See also **FREE TENON**.

**SPLIT.** Complete separation of wood fibers, normally on a ray plane. See also **CHECK**.

**SPOKESHAVE.** Extremely short plane with wing handles in line with edge of blade, pushed or pulled to form and finish curved and cylindrical surfaces.

**SPUR.** 1. Short tie that connects a cruck blade to the outside wall post or plate. See **CRUCK FRAME**.

**SQUARE.** At a 90-degree angle; a measuring tool with beam and blade fixed at 90 degrees to one another.

**SQUARE RULE.** Layout system in which a smaller, perfect timber is envisioned within a rough outer timber and joints cut to this inner timber. Many timbers in a square rule frame are interchangeable. Cf. **SCRIBE RULE**.

**SQUARING OFF.** Cutting off one end of a timber to yield a plane surface perpendicular to the length; helpful for layout and revealing flaws in the timber.

**SQUINT.** In a scarf joint, an abutment angled at other than square. See also **UNDERSQUINT**.

**STADDLE STONE.** Upright, tapered, earthfast stone on which a building such as a granary is supported, usually 2 to 3 ft. aboveground to avoid damp, and with a round, overhanging cap to help resist the entry of rodents (thus the nickname "mushroom stone").

**STAGING.** Scaffolding.

**STAVE CONSTRUCTION.** Ancient Norwegian walling method of posts or planks set solid in a grooved timber framework. Built ca. 1000–1350, remaining stave churches number 28.

**STEEL SQUARE.** See **FRAMING SQUARE**

**STEPLAP.** Lap joint between rafter and plate, the former relieved from the bottom, the latter notched to fit.

**STICK, STICKER.** Spacing piece used between stacked timbers or boards to provide air circulation and between stacked bents for strap clearance.

**STICKER BURN.** Stain left by a sticker on the surface of lumber if stacked for a long period of time out-of-doors.

**STIRRUP.** Iron strap used to reinforce truss joints such as kingpost to tie beam or upper chord foot to tie beam end.

**STOP.** 1. Shaved or carved decorative end of chamfer (*q.v.*). 2. Device fitted to any tool to limit its depth of cut.

**STORY POLE.** Slender stick marked with important intervals, for repeated transfer in frame, finish or individual timber layout.

**STORY POST.** Wall post that rises through more than one story.

**STRAINING BEAM.** Topmost horizontal timber joining the upper ends of queenposts in a truss or roof frame.

**STRESS-SKIN PANEL.** Sandwich of two layers of sheet goods enclosing and bonded to core of framing lumber.

**STRUCTURAL INSULATED PANEL.** Sandwich of two layers of sheet goods enclosing and bonded to a core of thermal insulation. Also, *SIP*.

**STRUT.** Axially loaded minor member in a truss or frame.

**STUB TENON.** Abbreviated tenon designed for location only.

**STUD.** Subsidiary vertical member in a framed wall or partition (O.E. *studu*, post).

**SUMMER BEAM.** Major floor timber spanning a large opening to support common joists. See BRIDGING JOIST.

**SWEEP.** See CROOK.

**SWING BEAM.** Large, transverse barn beam under which animals walking around a central post used to thresh grain.

**TABLE.** 1. In a scarf joint, the raised portion of each scarf-half, designed to interfere once assembled and so prevent withdrawal in the length. 2. Broad surface of a through housing (Ben Brungraber, 1993).

**TEAZLE TENON.** In the English tying joint, the tenon cut at the top of the post that engages the underside of the tie beam.

**TELESCOPING FRAMING.** Steeple framing, concealed from the outside, that lodges the bottom timbers of any given stage several feet within the frame of the stage below, contributing stability.

**TEMPLATE.** Full-size pattern of thin material, used for laying out and checking joints and other purposes.

**TENON.** End of a timber, reduced in section and flanked by one or more resulting shoulders.

**TENSION.** The state of stress in which particles of material tend to be pulled apart.

**THICKNESS.** See DEPTH.

**THREE-FOUR-FIVE.** Trigonometric method of squaring an assembly. Points marked at three units on one leg and four units on the adjacent leg necessarily will be five units apart when the included angle is 90 degrees. See PYTHAGOREAN THEOREM.

**THRESHING FLOOR.** Brick, stone, or tightly fitted wooden floor, often in the central bay or aisle of a barn, used for threshing grain.

**THROUGH TENON.** Tenon that passes right through the timber it joins; it may be cut off flush or it may extend past the outside face of the mortised member to be wedged or locked in place.

**TIE BEAM.** Important horizontal transverse frame member that resists the tendency of the roof to spread the walls. The tie beam may be found at the top of the walls, where it is able to receive the thrust of the rafters directly, or it may be found as much as several feet lower down the walls, where it joins principal posts in tension connections.

**TIMBER.** Large squared or otherwise shaped piece of wood ready for fashioning as one member of a structure.

**TIMBER FRAME.** Frame of large timbers connected by structural woodwork joints and supporting small timbers to which roof, walls and floors are fastened. Sometimes called a *full frame*. Cf. POST AND BEAM 2.

**TONGUE AND FORK.** End joint in which one timber takes the shape of a two-tine fork and the other a central tongue to fit between the tines; usually found at rafter peaks. See also BRIDLE.

**TOPPING OUT.** Ceremony celebrating the placement of the last piece of framing, in the US by fastening a bough at a gable end peak, sometimes called a wetting bush.

**TRAIT DE JUPITER.** See BOLT-O'-LIGHTNING.

**TRANSVERSE.** Said of elements crossing the main axis (usually set by the ridge) of a building.

**TRENCH.** Crossgrain open housing cut less than half the depth of the timber, to receive any crossing lapped timber.

**TRIMMER.** Floor member running with the joists at an opening, as for a staircase, and carrying the end of the header (*q.v.*). Also, parts of the framing for a Dutch jambless fireplace hood.

**TRIPLE BYPASS.** Tying joint in which the tie is tenoned to the plate, then the assembly let down over separate tenons rising from the post, one to align with and join the plate, the other the tie. Jowled post head resembles that of English tying joint, but turned 90 degrees.

**TRUNNEL.** Treenail. A peg. Sometimes refers to an extra-large peg.

**TRUSS.** 1. In carpentry, a network of timbers forming

rigid support structure; ideally, all members of the truss behave in either compression or tension, none in bending. Trusses are used to span distances impractical for solid members, or to support unusual loads. 2. A carved vegetative volute applied as an ornament to flank a chimneypiece or other focal point.

**TUMBLING.** Scribing technique in which the timber to be tenoned is rolled alternately onto its sides in the layout to mark the upper extremities of the shoulder lines at the arris of the mortised timber. With the timber righted, the marks are joined for the upper shoulder line. See page 133.

**TUSK TENON.** 1. Horizontal through tenon with outside wedge (the tusk) applied vertically (Hewett, 1980). 2. Horizontal blind tenon with square buttress (the tusk) between lower cheek and shoulder (Newlands, 1854; Alcock, 1996). 3. Horizontal blind tenon with diminished buttress (the tusk) between upper cheek and shoulder (Moxon, 1680), called by Hewett and Alcock a *diminished shoulder tenon*, and by Levin (1980) an *entrant shoulder tenon*. This buttress is sometimes called a diminished haunch because of its resemblance in profile to that of a diminished-haunch tenon. The latter tenon, however, is used to make a corner joint, whereas the tusk tenon is used to connect the end of one beam to the face of another.

**TWIN TENON.** Paired tenons cut side by side and used to strengthen connections in large timbers. Cf. **DOUBLE TENON**.

**TWIST.** Deviation from plane in the surface of a timber. The bane of the woodworker. If the twist is the result of released growth stresses in the tree (see **SPIRAL GRAIN**), rather than poor conversion, all surfaces of the timber will be twisted. Also **WIND**.

**TWO-FT. MARK.** Method of accounting for variation in plate height. Mark is scored across post faces at fixed distance from post bottom, then post shoulders cut so top of plate will lie 2 ft. above.

**TWYBILL.** See **BISAIGUË**.

**UNDERSQUINT.** See **SQUINT**.

**UPPER FACE (UK).** Best face, used for marking out.

**UPSTAND.** Uppermost part of a flared or jowled post in an English tying joint (*q.v.*), presenting the teazle tenon.

**VALLEY ROOF.** A compound roof resulting from two roof slopes meeting over an inside corner. Cf. **HIP ROOF**.

**VERDIEPINGH.** In a Dutch barn, column length above the anchorbeam; literally, story.

**VERNACULAR.** Local, as applied to building style, method and materials; vernacular styles are directly influenced by immediately surrounding culture, conditions and climate.

**VESICA PISCES.** Geometric form enclosed by arcs of intersecting circles (L., fish bladder).

**VOUSSOIR.** Any of the wedge-shaped pieces making up a stone arch.

**WALKING BEAMS.** Two parallel beams laid on the ground upon which timbers may be moved with a pivoting action.

**WANE.** Nature's chamfer; the rounded arrises of a timber squared from an undersized log. Adjective *waney*.

**WARP.** Deviation from flatness across the grain. If concave, also called cup. As they season, boards normally cup away from the heart. Timber surfaces warp as if to return to the log.

**WATTLE AND DAUB.** A framework of woven withes covered by layers of daub mixed of clay, lime, horsehair and cow dung, used to fill openings between studs in early timber frames.

**WELL.** Opening in a frame for a stairway, a chimney, etc.

**WHISTLE CUT.** Translation of French nickname for a simple, oblique scarf joint.

**WIDTH.** The horizontal dimension of a beam as viewed in place; breadth. Cf. **DEPTH**. Indeterminate for interior posts.

**WIND, WINDING.** See **TWIST**.

**WIND BRACE.** A brace lying in the plane of the roof, usually running from a principal rafter to a ridge or purlin.

**WINDING STICKS.** Matched pair of perfectly straight sticks laid across a timber at some interval (usually the full length) or at proposed joint locations and sighted over their top edges to reveal twist in the timber surface. If the sticks are parallel, the surface is free of twist.

**WINDLASS.** Horizontal winding pole used with a rope for lifting.

**YOKE.** Short horizontal beam between two timbers, especially between tops of cruck blades (*q.v.*).